



Univox® TLS-2.2

Transportation Loop System

Features

- High ability to overcome metal loss
- High output current, 10-30 Arms (power supply related)
- High frequency gain potentiometer (MLC) on PCB
- Surface mount technology
- Insensitive to vibrations (complies with EN 50155:2021 and EN 61373:2010)
- Extreme temperature resistance (complies with EN 50155:2021)
- Fire protection complies with EN 45545-2:2020 +A1:2023
- Adapted for fixed installation in limited spaces
- 24 VDC nominal power connection
- High quality WAGO 769 series connectors
- Balanced and galvanically isolated input
- Rugged Dip-switch input and output level settings on PCB for quick installation
- Isolated opto-coupler outputs for input and output signal check (diagnostic test)

Univox® TLS-2.2 loop amplifier - specially designed for railway vehicles

Univox® TLS-2.2 is designed to drive hearing loops in larger vehicles completely or partially enclosed by metal, like train cars, trams, subways and ships. TLS-2.2 is a constant current amplifier with very high output current, 10-30 Arms (power supply related) providing compensation for the strong damping effect that conductive materials have on magnetic transmission. Metal loss correction is also available for high frequency slope corrections.

The rugged SMD construction provides high immunity to mechanical vibration and shock, complying with the requirements of EN 50155:2021 and EN 61373:2010 standards. All larger capacitors are glued onto the coated dust resistant PCB. The requirements in the fire protection standard EN 45545-2:2020 +A1:2023, are met.

TLS-2.2 has an efficient, fan free cooling system, for trouble free operation. It complies with the highest environmental temperature requirements of the EN 50155:2021 standard (Category TX, -40 to +85°C). All relevant EMC and EMI requirements are fulfilled. A closed metal casing and professional connectors make TLS-2.2 rated IP40. The TLS-2.2 also features a built-in reverse polarity protection (diode) and an enhanced over-current protection (fuse). The amplifier is designed to fit and work in cramped spaces, as required in such environments. All the connectors and indicators are placed on one side of the amplifier to facilitate installation, service and control. The amplifier can be fixed mounted on site.

The balanced input, power supply, loop output and diagnostic system are connected to the amplifier using high quality WAGO 769 series connectors. Input sensitivity and output level are set by rugged DIL switches on the PCB where the metal loss correction potentiometer is also located.

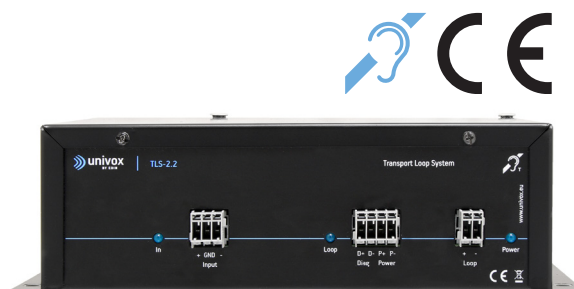
TLS-2.2 can easily be connected to the diagnostic system of a computer host through the opto-coupler's isolated outputs for control of input and output signals.

Technical specifications TLS-2.2

Power input	Galvanically isolated and balanced 4 pin connector WAGO 769-664/003-000 (chassis) WAGO 769-104/021-000 (mating, cable) DC Voltage: 24 VDC nominal The connected power supply must be fused by a 10A slow fuse curve C LED indicator in front panel (function control) Note: Connector is shared with diagnostic output (see below)
Power Consumption* (at 24VDC)	Max DC current consumption: 8A Max power consumption: approx. 200VA Average power consumption during call-outs: 50VA Quiescent power consumption: 1.5VA Max average temperature dissipation: 75W
Signal input	Galvanically isolated and balanced 3 pin connector WAGO 769-663/003-000 (chassis) WAGO 769-103/021-000 (mating, cable) Input sensitivity and AGC knee point is set internally (DIP switch on PCB) Input sensitivity range: 100mV-5Vrms LED indicator in front panel (for input level setting)
Loop output	Galvanically isolated and balanced 2 pin connector WAGO 769-662/003-000 (chassis) WAGO 769-102/021-000 (mating, cable) 10 Arms (125ms) @ 0.75 Ohm output depending on supplied voltage and loop load, set internally (DIP switch on PCB) LED indicator in front panel (function control)
Diagnostic output	Galvanically isolated and balanced 4 pin connector WAGO 769-664/003-000 (chassis) WAGO 769-104/021-000 (mating, cable) Isolated opto-coupler output for input and output signal check Note: Connector is shared with power input (see above)
Audio specification	Frequency response 75-6800Hz Metal loss correction (MLC) Potentiometer mounted on PCB, adjustable gain slope from 0-2.5dB/octave Dual Action AGC Dynamic Range: > 50-70dB (+1.5dB). Attack time: 2-500ms, Release time: 0.5-20dB/s Filter High slope lowpass filter 24dB/oct
Safety	Isolation Case and signal ground isolated by 200V capacitor Reverse polarity protection Reverse polarity protection built-in (diode) Overvoltage protection Enhanced over-current protection built-in (fuse, 10A slow) Cooling Fan free convection cooling (external heat sink) IP class IP40
Physical	Size (max. incl. heat sink) 290 x 219 x 86mm (W x D x H) 2D mechanical drawing and 3D STEP file available on request Weight 2.940g Mounting options Surface mount (screw holes in flanges) Ground bolt M6 Torque 5 Nm Storage temperature -40 to +70°C
Shipping details	Part No 213112 Box size (6 units/box) 640 x 380 x 395mm (L x W x H) Std package bulk weight (6 units) 21.6kg

* Power consumption is highly related to loop figuration, loop cable location and metal absorption. It has to be calculated/measured for each configuration separately.

For more information, please visit univox.eu



This product is designed to meet the system requirements of IEC60118-4 when correctly designed, installed, commissioned and maintained. Specification data complied according to IEC62489-1.

