



A multifunctional, overall high-end train headlight unit that includes all the external light functions required on the European railways.

Bright. Compact. Supreme.

Vision on the rails.

The Teknoware Vision is your choice when you need a bright, multifunctional light unit for your modern rail vehicle. Vision is a headlight which includes all the external light functions required on the European railways. The modern and innovative design provides a more homogeneous, highly efficient and supremely reliable light source.

All three functions are included in the same package and depending on the driving direction, a different function can be used. Vision is a compact and cost-efficient alternative that assures a clear visibility on the rails in every situation.

Vision fulfills the requirements of the Commission Regulation (EU) No 1302/2014 (TSI LOC & PAS) concerning head, marker and tail lights. EC certificate available in the ERADIS database.



Multifunctional

Headlight, marker light and tail light modes.

Clear front view

UV and scratch protected.

Reduced maintenance time

Improved availability of trains.

Cast aluminium casing

Designed to last in any weather condition.

Weatherproof

Rated IP66 according to IEC 60529.

Fire protection

HL3, according to EN 45545-2.

Shockproof

Designed to withstand shock, impact and vibration. IK08, according to IEC 62262.



FACTS IN BRIEF



INNOVATIVE
DESIGN



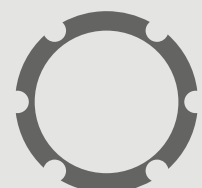
MULTIFUNCTIONAL



SHOCK AND
VIBRATION PROOF



WATERPROOF
AND DUSTPROOF



CAST
ALUMINIUM

Vision 24 VDC

Specifications

Light source	Headlight mode	5700 K LEDs
	Marker light mode	3000 K LEDs
	Tail light mode	RED LEDs
	Colours according to EN 15153-1	
Light output on optical axis, different angles according to EN 15153-1 requirements	Full beam headlight	69 000 cd
	Dimmed headlight	15 700 cd
	Full lower marker light	600 cd
	Dimmed lower marker light	270 cd
	Tail light	50 cd
Intensity value adjustments possible on request. Lit area for each function according to EN 15153-1.		

Mechanical characteristics

Product ID	TVP21012 (1002-4597)
Weight [kg]	2.4
Dimensions (HxLxD) [mm]	211 x 211 x 95
Connectors	Deutsch DT04-12PA-CE09
Wire set length	30 cm (other possibilities on request)

Electrical characteristics

Input voltage: nominal	24 VDC	
Voltage: min.–max.	Range according to EN 50155	
Lumen maintenance	> 60 000 h	
Power consumption (24 VDC version) ±10%	Full beam headlight	12 W
	Dimmed headlight	3.2 W
	Full lower marker light	3.5 W
	Dimmed lower marker light	2.5 W
	Tail light	5.9 W

Power consumption may vary due to installation adjustments for train type.

Material

Casing	Cast aluminium, powder painted (RAL 9005)
Lens	Polycarbonate UV and scratch protected

Environmental conditions

Ambient temperature range	-40 °C...+85 °C
Degrees of protection	IP66 according to IEC 60529
Requirements for electronic equipment used	According to EN 50155
Fire protection level	HL3 according to EN 45545-2
Shocks and vibrations	IEC 61373 Cat. 1 Class B
Shock resistance	IK08 according to IEC 62262
Salt mist	According to EN 60068-2-11

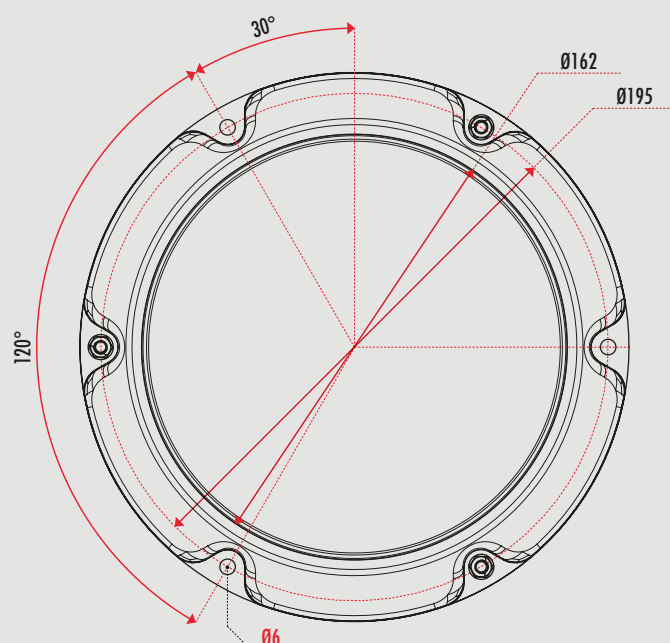
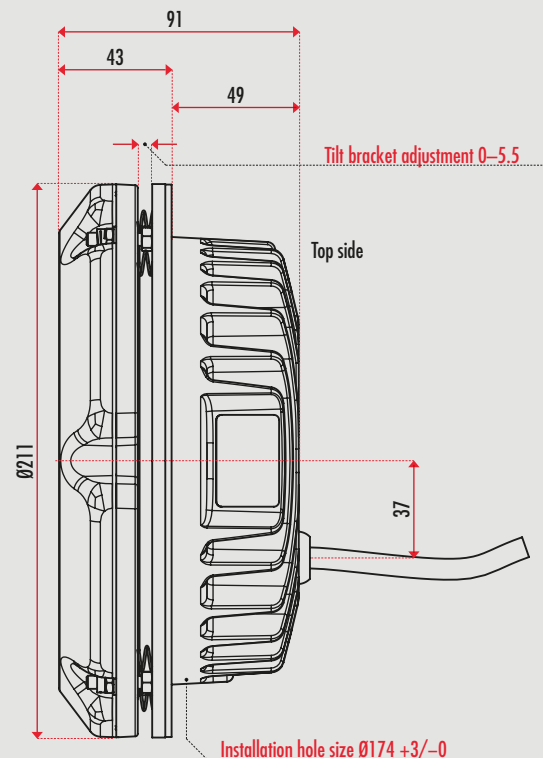
EMC

Immunity and emissions	According to EN 50121-3-2
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Special features

- Product is protected against reverse input voltage polarity.
- Status feedback for all different functions.
- Angle adjustment on 2 axis ±1.5°.
- UV and scratch protected.
- Inrush current limited (max. $5 \times I_{nom}$ at max. load).

Dimensions [mm]



Vision 24 VDC with 24 VDC heated glass

Specifications		
Light source	Headlight mode	5700 K LEDs
	Marker light mode	3000 K LEDs
	Tail light mode	RED LEDs
	Colours according to EN 15153-1	
Light output on optical axis, different angles according to EN 15153-1 requirements	Full beam headlight	69 000 cd
	Dimmed headlight	15 700 cd
	Full lower marker light	600 cd
	Dimmed lower marker light	270 cd
	Tail light	50 cd
Intensity value adjustments possible on request. Lit area for each function according to EN 15153-1.		

Mechanical characteristics	
Product ID	TVP21502 (1002-1677)
Weight [kg]	3.2
Dimensions (HxLxD) [mm]	211 x 211 x 111
Connectors	Light supply: Deutsch DT04-12PA-CE09 Heated glass supply: Deutsch DT04-2P-CE03
Wire set length	30 cm (other possibilities on request)

Electrical characteristics		
Input voltage: nominal	24 VDC	
Voltage: min.–max.	Range according to EN 50155	
Lumen maintenance	> 60 000 h	
Power consumption (24 VDC version) ±10%	Full beam headlight	14 W
	Dimmed headlight	4.0 W
	Full lower marker light	4.2 W
	Dimmed lower marker light	3.0 W
	Tail light	7.6 W

Power consumption may vary due to installation adjustments for train type.

Heated glass nominal (±10%)	60 W @ 24 VDC (@ +20 °C)
Max peak. (±10%)	126 W @ 30 VDC (@ -40 °C)

Power is dependent on voltage and temperature, because the heated glass is a resistive load with a PTC effect.

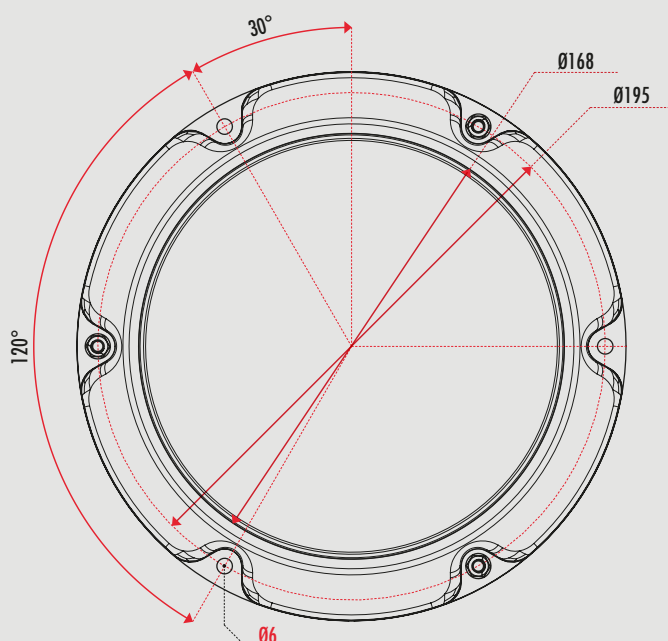
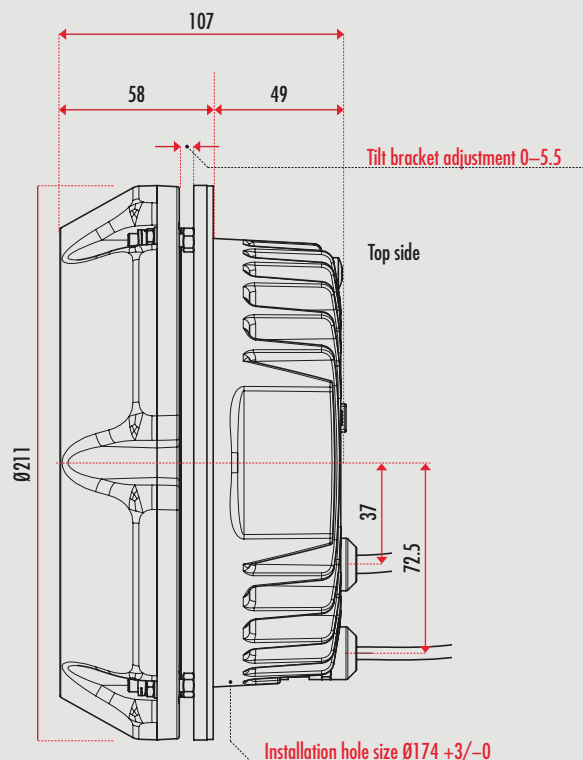
Material	
Casing	Cast aluminium, powder painted (RAL 9005)
Lens	Polycarbonate UV and scratch protected
Heated glass	Tempered safety glass

Environmental conditions	
Ambient temperature range	-40 °C...+70 °C
Degrees of protection	IP66 and IPX9 according to IEC 60529
Requirements for electronic equipment used	According to EN 50155
Fire protection level	HL3 according to EN 45545-2
Shocks and vibrations	IEC 61373 Cat. 1 Class B
Shock resistance	IK08 according to IEC 62262
Salt mist	According to EN 60068-2-11
Ice melting	According to EN16251 clause 6.11.3.1 test c

EMC	
Immunity and emissions	According to EN 50121-3-2

Special features	
<ul style="list-style-type: none"> • Product is protected against reverse input voltage polarity. • Status feedback for all different functions. • Angle adjustment on 2 axis ±1.5°. • UV and scratch protected. • Inrush current limited (max. 5 x I_{nom} at max. load). 	

Dimensions [mm]



Vision 110 VDC

Specifications

Light source	Headlight mode	5700 K LEDs
	Marker light mode	3000 K LEDs
	Tail light mode	RED LEDs
	Colours according to EN 15153-1	
Light output on optical axis, different angles according to EN 15153-1 requirements	Full beam headlight	69 000 cd
	Dimmed headlight	15 700 cd
	Full lower marker light	600 cd
	Dimmed lower marker light	270 cd
	Tail light	50 cd
Intensity value adjustments possible on request. Lit area for each function according to EN 15153-1.		

Mechanical characteristics

Product ID	TVP21001 (1000-5651)
Weight [kg]	2.4
Dimensions (HxLxD) [mm]	211 x 211 x 95
Connectors	Deutsch DT04-12PA-CE09
Wire set length	30 cm (other possibilities on request)

Electrical characteristics

Input voltage: nominal	110 VDC	
Voltage: min.–max.	Range according to EN 50155	
Lumen maintenance	> 60 000 h	
Power consumption (110 VDC version) ±10%	Full beam headlight	13 W
	Dimmed headlight	3.5 W
	Full lower marker light	3.5 W
	Dimmed lower marker light	2.5 W
	Tail light	6.5 W

Power consumption may vary due to installation adjustments for train type.

Material

Casing	Cast aluminium, powder painted (RAL 9005)
Lens	Polycarbonate UV and scratch protected

Environmental conditions

Ambient temperature range	-40 °C...+85 °C
Degrees of protection	IP66 according to IEC 60529
Requirements for electronic equipment used	According to EN 50155
Fire protection level	HL3 according to EN 45545-2
Shocks and vibrations	IEC 61373 Cat. 1 Class B
Shock resistance	IK08 according to IEC 62262
Salt mist	According to EN 60068-2-11

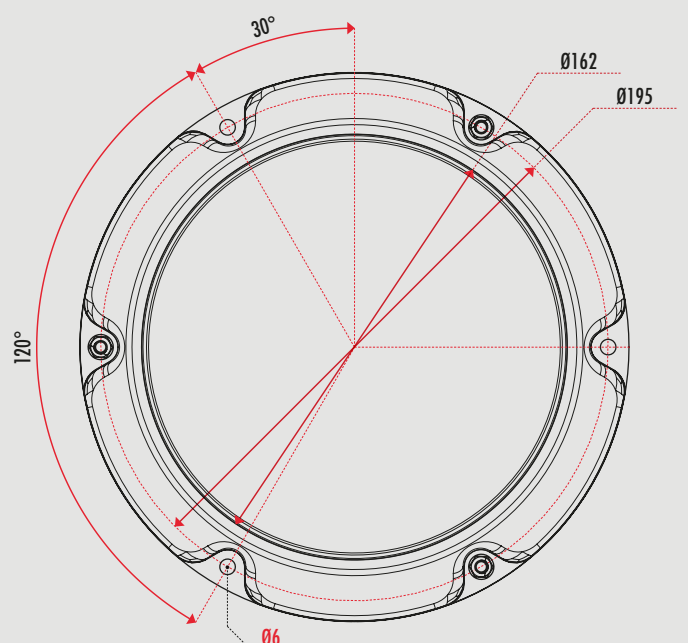
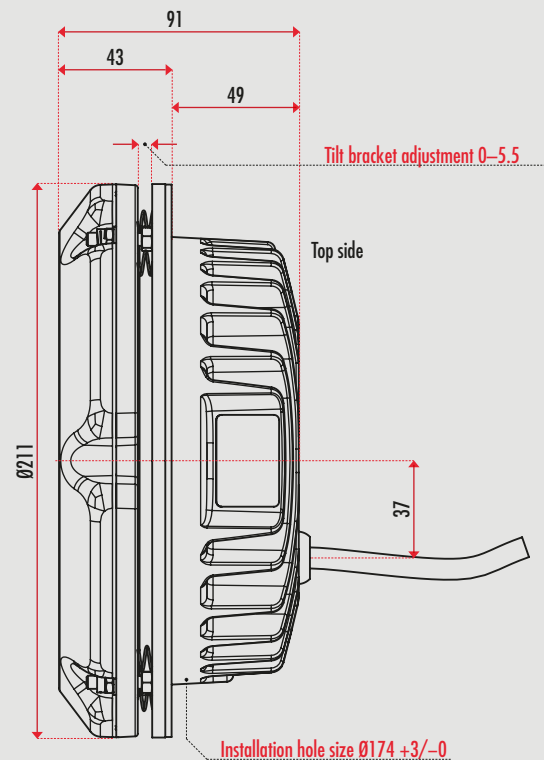
EMC

Immunity and emissions	According to EN 50121-3-2
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Special features

- Product is protected against reverse input voltage polarity.
- Status feedback for all different functions.
- Angle adjustment on 2 axis ±1.5°.
- UV and scratch protected.
- Inrush current limited (max. $5 \times I_{nom}$ at max. load).

Dimensions [mm]



Vision 110 VDC with 24 VDC heated glass

Specifications		
Light source	Headlight mode	5700 K LEDs
	Marker light mode	3000 K LEDs
	Tail light mode	RED LEDs
	Colours according to EN 15153-1	
Light output on optical axis, different angles according to EN 15153-1 requirements	Full beam headlight	69 000 cd
	Dimmed headlight	15 700 cd
	Full lower marker light	600 cd
	Dimmed lower marker light	270 cd
	Tail light	50 cd
Intensity value adjustments possible on request. Lit area for each function according to EN 15153-1.		

Mechanical characteristics	
Product ID	TVP21501 (1001-2479)
Weight [kg]	3.2
Dimensions (HxLxD) [mm]	211 x 211 x 111
Connectors	Light supply: Deutsch DT04-12PA-CE09 Heated glass supply: Deutsch DT04-2P-CE03
Wire set length	30 cm (other possibilities on request)

Electrical characteristics		
Input voltage: nominal	Light unit: 110 VDC Heated glass: 24 VDC	
Voltage: min.–max.	Range according to EN 50155	
Lumen maintenance	> 60 000 h	
Power consumption (110VDC version) ±10%	Full beam headlight	16 W
	Dimmed headlight	4.3 W
	Full lower marker light	4.2 W
	Dimmed lower marker light	3.0 W
	Tail light	8.2 W

Power consumption may vary due to installation adjustments for train type.

Heated glass nominal (±10%)	60 W @ 24 VDC (@ +20 °C)
Max peak. (±10%)	126 W @ 30 VDC (@ -40 °C)

Power is dependent on voltage and temperature, because the heated glass is a resistive load with a PTC effect.

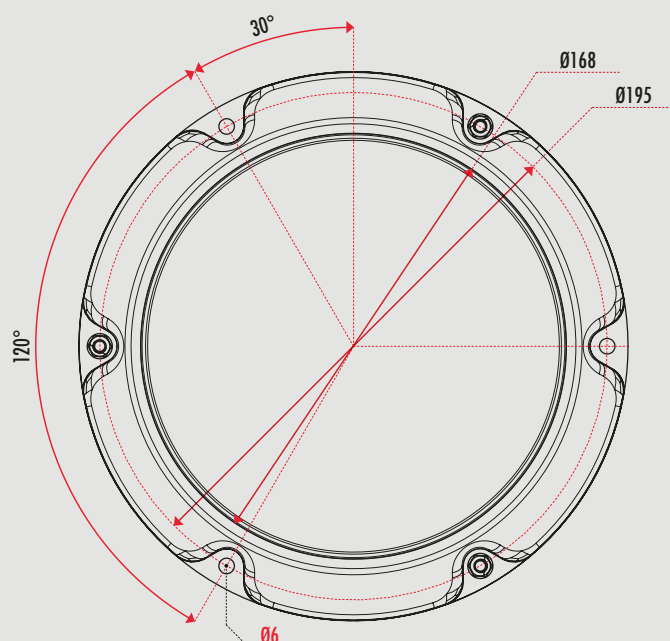
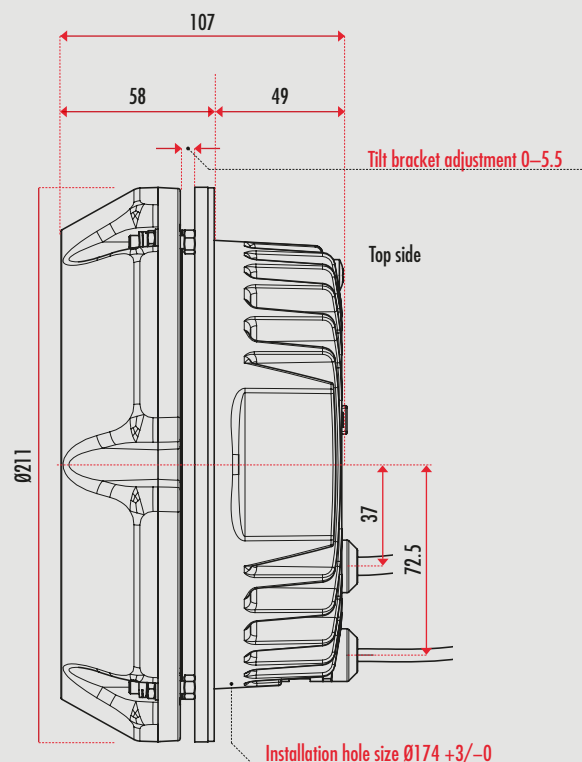
Material	
Casing	Cast aluminium, powder painted (RAL 9005)
Lens	Polycarbonate UV and scratch protected
Heated glass	Tempered safety glass

Environmental conditions	
Ambient temperature range	-40 °C...+70 °C
Degrees of protection	IP66 and IPX9 according to IEC 60529
Requirements for electronic equipment used	According to EN 50155
Fire protection level	HL3 according to EN 45545-2
Shocks and vibrations	IEC 61373 Cat. 1 Class B
Shock resistance	IK08 according to IEC 62262
Salt mist	According to EN 60068-2-11
Ice melting	According to EN16251 clause 6.11.3.1 test c

EMC	
Immunity and emissions	According to EN 50121-3-2

Special features	
<ul style="list-style-type: none"> Product is protected against reverse input voltage polarity. Status feedback for all different functions. Angle adjustment on 2 axis ±1.5°. UV and scratch protected. Inrush current limited (max. $5 \times I_{nom}$ at max. load). 	

Dimensions [mm]



LET THERE BE CONFIDENCE.

People tend to take the presence of light for granted. We take it seriously. Our passion for finding the best interior solution or lighting for our customers' needs is the foundation which unites our three businesses. The Bus & Coach and Rail Divisions aim to increase our customer vehicles' comfort, safety and functionality. The Emergency Lighting Division is innovating new means and measures to improve the safety and usability of buildings and cruise ships.

Teknoware is your local partner. We employ over 500 experts in 8 countries, and our sales network serves customers in over 50 countries. Our head office and largest production facilities are located in Finland, and our other world-class production units are located in the UK, Malaysia, Poland and the US.

Teknoware is part of the Teknopower Group.

Teknoware – Designed in Finland.