

System ZIA: Potential Distribution Modules - ZVL Series

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General data

Reference product 1649300000 ZVL 1.5

**Description of the
product**

The Weidmüller ZVL series, including ZVLD, ZVL INV and ZVL PE variants, consists of pluggable potential distribution modules designed for use with compatible installation terminal blocks. The modules enable the distribution and bridging of electrical potentials within control cabinets and distribution systems, supporting compact and efficient wiring concepts. Depending on the associated terminal block, the modules can be used for line (L), neutral (N) or protective earth (PE) applications.

Functional unit

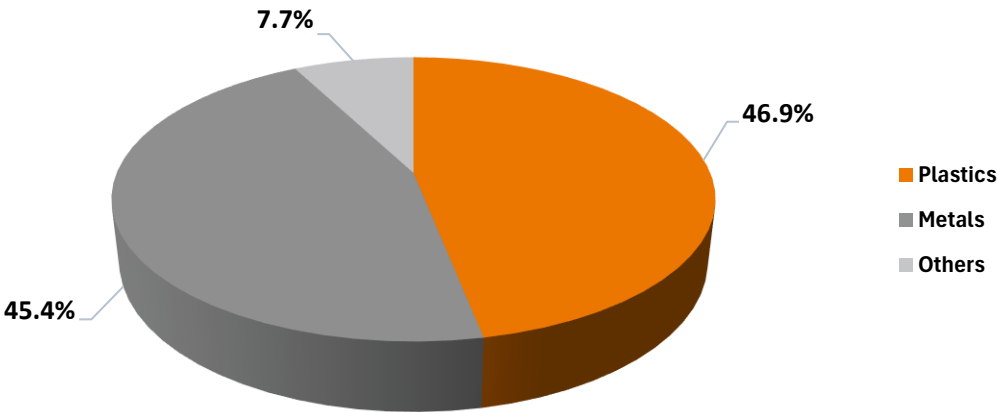
Enable the distribution and bridging of electrical potentials within a modular terminal block system, according to the appropriate application scenario and for the reference service life of the product of 20 years.

Other products covered

1650360000	1650370000	1714680000	1714690000	1714700000
1711930000	1697820000	1651970000		

Constituent Materials

The total weight of the reference product is 1,4 g (including packaging material). The constituent materials are distributed as follows:



Categorisation according to the material classes of IEC 62474:

Plastics			Metals			Other		
M-208	Polyamide (PA)	46,9 %	M-121	Copper and its alloys	32,2 %	M-341	Paper	7,7 %
			M-100	Stainless steel	13,2 %			
Plastics in total		46,9 %	Metals in total		45,4 %	Others in total		7,7 %

The products are in compliance with RoHS (EU Directive 2011/65/EU).

According to the REACH Regulation 1907/2006, the ECHA publishes on its website which substances are to be classified as so-called substances of very high concern (SVHC). As soon as an article contains SVHC above the respective threshold values for the declaration obligation according to Article 33, the affected articles and the SVHC they contain are published in the online product catalogue at each product.

The online product catalogue site of the reference product can be accessed via the link:

<https://eshop.weidmueller.com/p/1649300000>

Additional Environmental Information

Manufacture	This stage includes the manufacturing of the product and its packaging as well as the transport to the manufacturer's last logistics platform located in Hörselbach-Hainich (Germany). The final assembly site is located in Germany and has an ISO 14001 and ISO 50.001 certified environmental management system. Transport packaging, used in addition to product packaging when required for delivery, is excluded from the system boundaries.
Distribution	The shipment is made from the distribution centre to the customer by truck. The transport route to the customer was assumed to be 3500 km by lorry. Transport was modelled using an ecoinvent dataset reflecting average European load rates. The load rate is not explicitly specified in the dataset.
Installation	Only the disposal of the packaging is considered in this phase, as the installation is carried out manually with non-electrical tools.
Use	No maintenance or utilities are required during use.
End of Life	The end-of-life stage is modelled based on the data from Eurostat. The transport route to the disposal company was assumed to be 1000 km by lorry.

Environmental Impacts

Reference Service Lifetime	20 years			
Product category	Electrical switchgear and control gear solutions			
Installation elements	No special installation elements required.			
Use scenario	No energy is consumed during the products reference service lifetime: As a modular potential distribution system, ZVL modules can be combined with different terminal block types and functions, including PE and non-PE applications. The electrical operating characteristics and associated losses are therefore determined by the respective terminal block configuration rather than by the ZVL module itself.			
Geographical representativeness	Europe			
Software	GreenDelta openLCA 2.6.1			
Database	ecoinvent 3.12, EN15804 add-on (ecoinvent 3.12), carbon minds plastics technology 2024			
Energy model	Manufacture*	Installation	Use	End of Life
	Germany	-	-	Europe

*Energy model of the final assembly site.

The following tables represent the impact values of the reference product according to DIN EN 15804:2022-03 except for the environmental indicators of output flows and information on the biogenic carbon content of the product and the associated packaging.

Environmental impact indicators

Indicator	Unit	Total*	Manufacturing A1-A3	Distribution A4	Installation A5	Use B1-B7	End of Life C1-C4	Benefits and Loads D
Climate change - total	kg CO ₂ eq.	2,39E-02	2,11E-02	1,03E-03	5,27E-05	0,00E+00	1,67E-03	-1,73E-02
Climate change - fossil	kg CO ₂ eq.	2,37E-02	2,09E-02	1,03E-03	5,12E-05	0,00E+00	1,66E-03	-1,72E-02
Climate change - biogenic	kg CO ₂ eq.	1,40E-04	1,30E-04	2,16E-07	1,03E-06	0,00E+00	8,35E-06	-3,74E-05
Climate change - land use and land use change	kg CO ₂ eq.	2,98E-05	2,45E-05	3,35E-07	4,77E-07	0,00E+00	4,52E-06	-2,16E-05
Ozone depletion	kg CFC 11 eq.	2,61E-10	2,19E-10	2,32E-11	1,90E-12	0,00E+00	1,63E-11	-1,54E-10
Acidification	mol H ⁺ eq.	1,01E-03	1,00E-03	2,12E-06	1,89E-07	0,00E+00	3,90E-06	-9,50E-04
Eutrophication - freshwater	kg P eq.	4,68E-06	4,63E-06	7,74E-09	1,25E-09	0,00E+00	4,14E-08	-4,33E-06
Eutrophication - marine aquatic	kg N eq.	5,96E-05	5,83E-05	5,31E-07	4,72E-08	0,00E+00	7,87E-07	-5,26E-05
Eutrophication - terrestrial	mol N- eq.	7,44E-04	7,30E-04	5,84E-06	4,83E-07	0,00E+00	8,07E-06	-6,80E-04
Photochemical ozone formation	kg NMVOC	2,17E-04	2,10E-04	3,59E-06	1,86E-07	0,00E+00	3,15E-06	-1,90E-04
Resource use, mineral and metals	kg Sb eq.	1,24E-05	1,23E-05	3,63E-09	4,16E-10	0,00E+00	6,93E-09	-1,19E-05
Resource use, fossils	MJ	3,23E-01	2,94E-01	1,45E-02	9,60E-04	0,00E+00	1,41E-02	-2,31E-01
Water use	m ³	1,96E-02	1,91E-02	7,62E-05	7,31E-05	0,00E+00	3,10E-04	-1,57E-02

Additional environmental impact indicators

Indicator	Unit	Total*	Manufacturing A1-A3	Distribution A4	Installation A5	Use B1-B7	End of Life C1-C4	Benefits and Loads D
Particulate matter	Disease incidences	2,67E-09	2,54E-09	7,64E-11	5,93E-12	0,00E+00	4,05E-11	-2,40E-09
Ionising radiation, human health	kBq U235 eq.	7,63E-04	6,80E-04	6,29E-06	7,20E-06	0,00E+00	6,99E-05	-5,00E-04
Ecotoxicity, freshwater	CTUe	1,09E+00	1,08E+00	2,17E-03	2,20E-04	0,00E+00	4,02E-03	-1,04E+00
Human toxicity, cancer	CTUh	1,02E-10	9,97E-11	1,62E-13	2,80E-14	0,00E+00	1,88E-12	-9,60E-11
Human toxicity, non-cancer	CTUh	1,01E-08	1,01E-08	8,87E-12	5,13E-13	0,00E+00	1,87E-11	-9,69E-09
Land Use	-	3,40E-01	3,24E-01	8,75E-03	8,70E-04	0,00E+00	6,03E-03	-2,99E-01

Resources use indicators

Indicator	Unit	Total*	Manufacturing A1-A3	Distribution A4	Installation A5	Use B1-B7	End of Life C1-C4	Benefits and Loads D
Use of renewable primary energy	MJ	5,17E-02	4,85E-02	2,40E-04	4,20E-04	0,00E+00	2,53E-03	-4,31E-02
Use of renewable primary energy as raw materials	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources	MJ	5,17E-02	4,85E-02	2,40E-04	4,20E-04	0,00E+00	2,53E-03	-4,31E-02
Use of non-renewable primary energy	MJ	3,23E-01	2,94E-01	1,45E-02	9,60E-04	0,00E+00	1,41E-02	-2,31E-01
Use of non-renewable primary energy as raw materials	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources	MJ	3,23E-01	2,94E-01	1,45E-02	9,60E-04	0,00E+00	1,41E-02	-2,31E-01
Input of secondary material	kg	7,54E-04	6,80E-04	1,25E-05	4,75E-07	0,00E+00	6,08E-05	-5,00E-04
Use of renewable secondary fuels	MJ	3,18E-04	2,80E-04	3,33E-06	1,69E-07	0,00E+00	3,42E-05	-1,20E-04
Use of non-renewable secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m³	5,61E-04	5,50E-04	1,73E-06	1,70E-06	0,00E+00	7,18E-06	-4,70E-04

Waste category indicators

Indicator	Unit	Total*	Manufacturing A1-A3	Distribution A4	Installation A5	Use B1-B7	End of Life C1-C4	Benefits and Loads D
Hazardous waste disposed	kg	3,42E-01	3,41E-01	8,98E-05	1,25E-05	0,00E+00	5,70E-04	-3,32E-01
Non-hazardous waste disposed	kg	3,26E-01	3,22E-01	1,18E-03	1,30E-04	0,00E+00	3,05E-03	-2,87E-01
Radioactive waste disposed	kg	4,71E-07	4,36E-07	4,06E-09	1,27E-10	0,00E+00	3,10E-08	-3,04E-07
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	1,20E-03	1,11E-03	1,31E-05	4,75E-07	0,00E+00	7,79E-05	-8,10E-04
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy	MJ	1,77E-04	1,50E-04	2,72E-06	8,79E-08	0,00E+00	2,40E-05	-5,08E-05
Exported thermal energy	MJ	3,07E-04	3,00E-04	3,44E-06	7,18E-08	0,00E+00	3,83E-06	-1,50E-04

*In accordance with the current Product Category Rules (PCR), the values presented in the 'Total' column do not include the benefits and loads beyond the system boundaries as represented in 'Module D'.

The following table represents the environmental impact indicators for products other than the reference product covered by this Environmental Product Declaration (EPD).

Product number	Life Cycle Phase	Climate change - total	Climate change - fossil	Climate change - biogenic	Climate change -land use and land use change	Ozone depletion	Acidification	Eutrophication - freshwater	Eutrophication - marine	Eutrophication - terrestrial	Photochemical ozone formation	Resource use, mineral and metals	Resource use, fossils	Water use
1650360000 1714690000	Total*	2,89E-02	2,87E-02	1,43E-04	3,24E-05	2,76E-10	1,02E-03	4,87E-06	6,67E-05	7,80E-04	2,29E-04	1,24E-05	3,97E-01	2,44E-02
	Manufacturing	2,51E-02	2,49E-02	1,30E-04	2,45E-05	2,20E-10	1,01E-03	4,80E-06	6,48E-05	7,60E-04	2,20E-04	1,23E-05	3,56E-01	2,38E-02
	Distribution	1,38E-03	1,38E-03	2,91E-07	4,51E-07	3,13E-11	2,86E-06	1,04E-08	7,16E-07	7,88E-06	4,84E-06	4,90E-09	1,95E-02	1,00E-04
	Installation	5,27E-05	5,12E-05	1,03E-06	4,77E-07	1,90E-12	1,89E-07	1,25E-09	4,72E-08	4,83E-07	1,86E-07	4,16E-10	9,60E-04	7,31E-05
	Use	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	End of Life	2,37E-03	2,36E-03	1,14E-05	6,98E-06	2,32E-11	5,57E-06	6,33E-08	1,13E-06	1,15E-05	4,40E-06	1,05E-08	2,02E-02	4,70E-04
	Module D	-2,05E-02	-2,04E-02	-3,99E-05	-2,16E-05	-1,54E-10	-9,60E-04	-4,46E-06	-5,78E-05	-7,10E-04	-2,00E-04	-1,19E-05	-2,81E-01	-1,95E-02
1650370000	Total*	2,90E-02	2,88E-02	1,43E-04	3,25E-05	2,77E-10	1,02E-03	4,88E-06	6,68E-05	7,80E-04	2,29E-04	1,24E-05	3,98E-01	2,45E-02
	Manufacturing	2,52E-02	2,50E-02	1,30E-04	2,45E-05	2,20E-10	1,01E-03	4,80E-06	6,49E-05	7,60E-04	2,20E-04	1,23E-05	3,57E-01	2,39E-02
	Distribution	1,39E-03	1,39E-03	2,92E-07	4,54E-07	3,15E-11	2,88E-06	1,05E-08	7,19E-07	7,92E-06	4,87E-06	4,93E-09	1,96E-02	1,00E-04
	Installation	5,27E-05	5,12E-05	1,03E-06	4,77E-07	1,90E-12	1,89E-07	1,25E-09	4,72E-08	4,83E-07	1,86E-07	4,16E-10	9,60E-04	7,31E-05
	Use	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	End of Life	2,39E-03	2,37E-03	1,14E-05	7,03E-06	2,33E-11	5,61E-06	6,38E-08	1,13E-06	1,16E-05	4,42E-06	1,05E-08	2,03E-02	4,80E-04
	Module D	-2,05E-02	-2,05E-02	-3,99E-05	-2,16E-05	-1,54E-10	-9,60E-04	-4,46E-06	-5,80E-05	-7,10E-04	-2,00E-04	-1,19E-05	-2,82E-01	-1,95E-02
1651970000	Total*	2,44E-02	2,42E-02	1,30E-04	3,01E-05	2,62E-10	1,01E-03	4,70E-06	6,04E-05	7,45E-04	2,17E-04	1,24E-05	3,32E-01	2,01E-02
	Manufacturing	2,15E-02	2,14E-02	1,20E-04	2,45E-05	2,19E-10	1,00E-03	4,65E-06	5,90E-05	7,30E-04	2,10E-04	1,23E-05	3,01E-01	1,97E-02
	Distribution	1,08E-03	1,08E-03	2,26E-07	3,51E-07	2,44E-11	2,23E-06	8,12E-09	5,57E-07	6,13E-06	3,77E-06	3,82E-09	1,52E-02	8,00E-05
	Installation	5,27E-05	5,12E-05	1,03E-06	4,77E-07	1,90E-12	1,89E-07	1,25E-09	4,72E-08	4,83E-07	1,86E-07	4,16E-10	9,60E-04	7,31E-05
	Use	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	End of Life	1,74E-03	1,73E-03	8,66E-06	4,77E-06	1,70E-11	4,07E-06	4,37E-08	8,22E-07	8,43E-06	3,28E-06	7,30E-09	1,48E-02	3,30E-04
	Module D	-1,76E-02	-1,75E-02	-3,77E-05	-2,16E-05	-1,54E-10	-9,50E-04	-4,34E-06	-5,31E-05	-6,80E-04	-1,90E-04	-1,19E-05	-2,36E-01	-1,60E-02
1697820000	Total*	2,44E-02	2,42E-02	1,30E-04	3,00E-05	2,62E-10	1,01E-03	4,70E-06	6,04E-05	7,45E-04	2,17E-04	1,24E-05	3,31E-01	2,01E-02
	Manufacturing	2,15E-02	2,14E-02	1,20E-04	2,45E-05	2,19E-10	1,00E-03	4,65E-06	5,90E-05	7,30E-04	2,10E-04	1,23E-05	3,01E-01	1,97E-02
	Distribution	1,06E-03	1,06E-03	2,23E-07	3,47E-07	2,41E-11	2,20E-06	8,02E-09	5,50E-07	6,06E-06	3,72E-06	3,77E-09	1,50E-02	7,90E-05
	Installation	5,27E-05	5,12E-05	1,03E-06	4,77E-07	1,90E-12	1,89E-07	1,25E-09	4,72E-08	4,83E-07	1,86E-07	4,16E-10	9,60E-04	7,31E-05
	Use	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	End of Life	1,74E-03	1,73E-03	8,66E-06	4,77E-06	1,70E-11	4,07E-06	4,37E-08	8,22E-07	8,43E-06	3,28E-06	7,30E-09	1,48E-02	3,30E-04

	Module D	-1,76E-02	-1,75E-02	-3,77E-05	-2,16E-05	-1,54E-10	-9,50E-04	-4,34E-06	-5,31E-05	-6,80E-04	-1,90E-04	-1,19E-05	-2,36E-01	-1,60E-02
1711930000	Total*	1,99E-02	1,97E-02	1,06E-04	2,35E-05	2,00E-10	7,36E-04	3,50E-06	4,69E-05	5,63E-04	1,66E-04	8,98E-06	2,72E-01	1,67E-02
	Manufacturing	1,74E-02	1,72E-02	9,69E-05	1,79E-05	1,62E-10	7,30E-04	3,45E-06	4,56E-05	5,50E-04	1,60E-04	8,97E-06	2,45E-01	1,62E-02
	Distribution	8,90E-04	8,90E-04	1,87E-07	2,90E-07	2,01E-11	1,84E-06	6,70E-09	4,60E-07	5,06E-06	3,11E-06	3,15E-09	1,25E-02	6,60E-05
	Installation	9,46E-05	9,19E-05	1,84E-06	8,57E-07	3,41E-12	3,40E-07	2,24E-09	8,48E-08	8,68E-07	3,33E-07	7,46E-10	1,72E-03	1,30E-04
	Use	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	End of Life	1,52E-03	1,51E-03	7,29E-06	4,43E-06	1,48E-11	3,56E-06	4,02E-08	7,18E-07	7,37E-06	2,81E-06	6,66E-09	1,29E-02	3,00E-04
	Module D	-1,43E-02	-1,42E-02	-2,87E-05	-1,60E-05	-1,14E-10	-7,00E-04	-3,23E-06	-4,09E-05	-5,10E-04	-1,40E-04	-8,64E-06	-1,94E-01	-1,33E-02
1714680000	Total*	2,24E-02	2,23E-02	1,09E-04	2,41E-05	2,09E-10	7,47E-04	3,59E-06	5,02E-05	5,77E-04	1,68E-04	9,00E-06	3,08E-01	1,88E-02
	Manufacturing	1,92E-02	1,91E-02	9,67E-05	1,79E-05	1,63E-10	7,40E-04	3,53E-06	4,86E-05	5,60E-04	1,60E-04	8,98E-06	2,74E-01	1,84E-02
	Distribution	1,19E-03	1,19E-03	2,51E-07	3,90E-07	2,70E-11	2,47E-06	9,01E-09	6,18E-07	6,80E-06	4,18E-06	4,23E-09	1,69E-02	8,87E-05
	Installation	8,81E-05	8,50E-05	2,96E-06	1,06E-07	4,20E-13	9,54E-08	9,99E-10	3,93E-08	2,46E-07	8,88E-08	1,70E-10	3,40E-04	8,74E-06
	Use	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	End of Life	1,96E-03	1,95E-03	9,53E-06	5,63E-06	1,92E-11	4,60E-06	5,12E-08	9,29E-07	9,53E-06	3,66E-06	8,50E-09	1,67E-02	3,80E-04
	Module D	-1,58E-02	-1,57E-02	-2,99E-05	-1,60E-05	-1,14E-10	-7,00E-04	-3,29E-06	-4,33E-05	-5,20E-04	-1,50E-04	-8,65E-06	-2,17E-01	-1,50E-02
1714700000	Total*	2,26E-02	2,25E-02	1,10E-04	2,42E-05	2,10E-10	7,47E-04	3,60E-06	5,05E-05	5,77E-04	1,68E-04	9,00E-06	3,11E-01	1,90E-02
	Manufacturing	1,94E-02	1,92E-02	9,69E-05	1,79E-05	1,63E-10	7,40E-04	3,54E-06	4,89E-05	5,60E-04	1,60E-04	8,98E-06	2,77E-01	1,86E-02
	Distribution	1,21E-03	1,21E-03	2,54E-07	3,94E-07	2,73E-11	2,50E-06	9,12E-09	6,25E-07	6,88E-06	4,23E-06	4,28E-09	1,71E-02	8,98E-05
	Installation	8,81E-05	8,50E-05	2,96E-06	1,06E-07	4,20E-13	9,54E-08	9,99E-10	3,93E-08	2,46E-07	8,88E-08	1,70E-10	3,40E-04	8,74E-06
	Use	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	End of Life	1,99E-03	1,98E-03	9,66E-06	5,73E-06	1,95E-11	4,67E-06	5,21E-08	9,43E-07	9,67E-06	3,71E-06	8,65E-09	1,69E-02	3,90E-04
	Module D	-1,59E-02	-1,58E-02	-3,00E-05	-1,60E-05	-1,14E-10	-7,00E-04	-3,30E-06	-4,36E-05	-5,20E-04	-1,50E-04	-8,65E-06	-2,19E-01	-1,51E-02

Please obtain the units from the table of the reference article.

*In accordance with the current Product Category Rules (PCR), the values presented in the 'Total' column do not include the benefits and loads beyond the system boundaries as represented in 'Module D'.

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« Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling) »