



Urbino electric

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Power of Enthusiasm



Electric revolution Solaris Urbino electric

Exceptionally quiet, emission-free, distinguished by its modern design and guaranteeing low operation costs – discover the benefits of the Solaris Urbino electric. The first version was designed and built on the basis of the Solaris Alpino 8.9 LE low-entry midibus. The fully low-floor twelve-metre version uses the well-proven Solaris Urbino 12 as a basis, while its drive technology already benefits from experience gained during tests of the shorter model. Solaris offers also articulated electric buses: Urbino 18 electric and Urbino 18.75 electric.

While a member of the Urbino family, the Solaris Urbino electric differs from its combustion-engined counterparts in several features beyond the drive technology, ranging from its attractive exterior and interior styling to a series of innovative and cutting-edge design solutions.



Tailored to requirements

The configuration of the drive technology of the Urbino electric, can be exactly matched to their operators' requirements. This is made possible by the flexible design of the system's components, which allows them to be selected and scaled according to the demands of the routes the buses will be used on. Based on a route profile supplied by the operator, Solaris's engineers determine the right choice of technology. Engine power rating, size and capacity of batteries as well as different charging solutions can all be specified. The result is an Urbino electric that is perfectly suited to the expectations of its operator, tailored to its route profile and offers huge operational possibilities. Additionally, the careful selection of components and parameters reduces the purchase cost of the vehicle by cutting out on surplus features not required by a particular operator.



Unlimited operational possibilities

At the heart of the drive system of the Urbino electric are a four-pole, asynchronous traction motor and lithium-ion batteries. Their power and capacity can be adapted to the route on which the bus is to be used. The batteries are not only the source of energy for the motor, but they also feed all auxiliary systems, including air-conditioning and heating, steering pump and the electrically-powered doors. Components conventionally fed by compressors powered by the diesel engine have been replaced with electric counterparts. These innovations, along with the choice of charging solutions, enable an operational performance that can be equal to that of conventionally powered buses, but at lower operating costs. Additionally, Solaris's electric bus is a gain for the environment and significantly contributes to better air quality and living standards in our cities.





Charging systems and infrastructure

Solaris offers four different charging solutions for the Urbino electric. These allow the bus to be adapted to the infrastructure that operators have or may install. The first solution is a plug-in connection. Energy can be supplied through external chargers. Secondly, inductive charging is available for Solaris Urbino electric buses. Under the bus, a dedicated pick-up coil is fitted, which receives energy from inductive coils mounted under the surface of the road at termini or bus stops along the route.





Wide array of innovative solutions

Like inductive charging, Solaris's next solution is an automatic system that does not require drivers to leave their cab. This is a roof-mounted solution, which automatically connects to charging stations at the end of the line or at bus stops. After a short but powerful recharge, the batteries will be sufficiently topped up for the bus to continue to the next charging point, thus enabling all-day operation without range restrictions.

Fourth charging system is fuel cells. The batteries remain the main energy provider to the drive system and are charged by the fuel cells during operation. It makes the electric bus similarly efficient as diesel buses. Battery charging cycles are pre-programmed. The bus is fuelled with hydrogen once a day in the depot. It is ready to cover 300 km per day.





Comfortable work for drivers

The parameters and solutions adopted in the construction of the Urbino electric are a combination of state-of-the-art technology and design that pay particular attention to the environment. The bus is fitted with energy-saving LED lights. This technology has been used both for exterior and interior lighting. In the Solaris Urbino electric, driver have a dashboard equipped with touch-screen panels at their disposal, which in addition to the basic parameters display information about the state of the electric system and the battery charge level. Integrated into the touch screens are controls for the heating and other vehicle functions. This intuitive and easy-to-use system allows drivers to concentrate on driving without distractions.





First in the family: the Urbino 8.9 LE electric

The first Solaris Urbino electric celebrated its premiere at the 2011 Busworld exhibition in Kortrijk, Belgium. It then underwent a series of tests and demonstrations in a number of European cities, which confirmed its excellent characteristics and reliability.

With the ability to adjust the charging system of the bus to an operator's or city's infrastructure, the electric Urbino fits in any urban environment. It traverses narrow streets swiftly and silently, and keeps the air fresh and clean in crowded city centers.

The different battery sizes and other customisations offered by Solaris enable the bus's range to be tailored to the requirements of virtually any route. This further optimises the purchase cost of the vehicle, operating costs and the number of people that can be carried.





Built on experience: the Urbino 12 electric

Solaris's electric buses are also available in a fully low-floor version with a length of 12 meters. It is built on the basis of its popular diesel counterpart, but the innovative electric drive system guarantees lower operating costs.

The Urbino 12 electric is fully prepared for different operators' requirements by offering a maximum of flexibility in selecting batteries, charging systems and other components, making it a true breakthrough in electric mobility.

By using the Urbino 12 electric, city bus services become a guaranteed zero-emission mode of transport that offers unprecedented level of comfort for passengers and keeps the air in our cities clean. This electric bus makes the future become reality.





Articulated electric buses

The Urbino 18 electric is the first articulated electric buses produced by Solaris. 18 metres long, it can be specified with a wireless induction charging system. This makes it possible to equip the buses with small 90 kWh batteries, mounted on the roof above the rear axle. The buses have no typical engine tower which reduces interior intrusion and allows to offer as many as 50 seats.

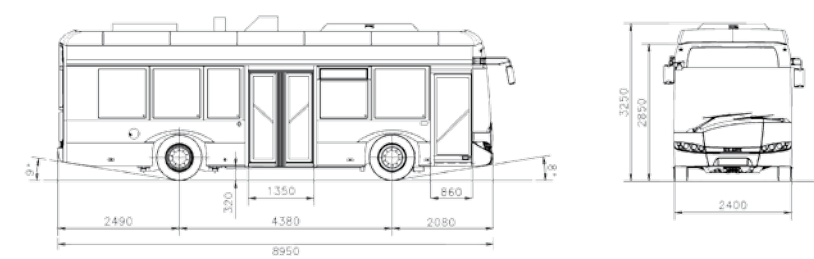
Solaris electric buses are also available in an extended articulated version. This Solaris Urbino 18.75 electric has the option of adding fuel cells to increase the range of the bus. Equipped with a 120 kWh battery, it uses Ballard's 101 kW fuel cells as a range extender. The fuel cells are used only when 100% of stored energy is required which will significantly increase their durability.

Zero-emission electric buses are an ideal option for cities interested in sustainable development. These vehicles, which consume 30% less energy when compared to their diesel counterparts, use every spare moment to charge batteries. Thanks to that their operational capacities are similar to buses with conventional drives.

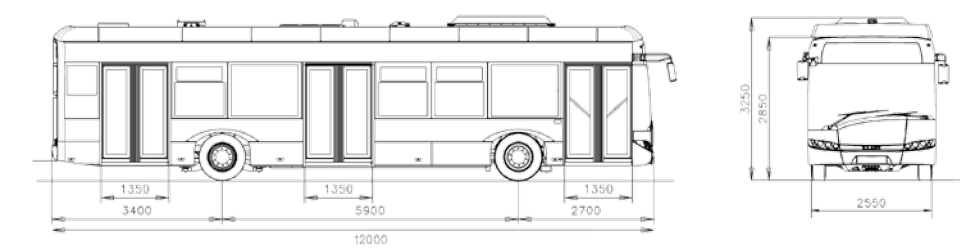


		standard ●	option ○	Urbino 8.9 LE electric	Urbino 12 electric	Urbino 18 electric	Urbino 18.75 electric
Driveline	Engine						
	asynchronous motor 120 kW	●					
	asynchronous motor 160 kW	○		●			
	asynchronous motor 240 kW					●	●
	motors in drive axle 2x60 kW				○		
	Traction batteries						
Charging system	lithium-ion (operational voltage depending on specification)	●		●	●	●	●
	operational performance up to 24h (depending on batteries power and charging system)	●		●	●	●	●
	Hydrogen storage – cylinder type 3, 9x205 l (according to EC 79/2009 regulations)						●
	Charging system						
	plug-in	●		●	●	●	●
	pantograph	○*		○	○	○	
Chassis	inductive			○	○	○	
	Front axle						
	ZF independent suspension	●		●	●	●	●
	ZF rigid suspension				○	○	○
	Drive axle						
	DANA	●					
	ZF gantry axle				●	●	●
	ZF portal axle with integrated electric motors				○*		
	Centre axle – ZF neutral axle					●	●
	Central lubrication						
	central lubrication point – solid oil	●		●	●	●	●
	central lubrication system with self-diagnostic – semi-fluid oil				○	○	○
	Steering – ZF Servocom	●		●	●	●	●
	Brakes						
	EBS electronic (dual-circuit) braking system incorporating the anti-blocking system (ABS) and the traction control system (ASR), parking (hand) brake with emergency release function from the driver's seat, bus stop brake	●		●	●	●	●
	Suspension levelling system						
	ECAS air suspension with kneeling function, raising by some 60 mm, lowering by 70 mm	●		●	●	●	●
	Bodywork frame – stainless steel	●		●	●	●	●
Bodywork	Side panels – stainless steel and aluminium panels	●		●	●	●	●
	Door arrangement	1-2		1-2 2-2 1-2-2 2-2-2	1-2-2 2-2-2 1-2-2-2 2-2-2-2	1-2-2 2-2-2 1-2-2-2 2-2-2-2	1-2-2 2-2-2 1-2-2-2 2-2-2-2
	Maximum entrance height						
	1 st and 2 nd door	320 mm		320 mm	320 mm	320 mm	320 mm
	3 rd door			340 mm	340 mm	340 mm	340 mm
	4 th door				340 mm	340 mm	
	Access ramp – wheelchair ramp at the 2 nd entrance, positioned and stowed away manually	●		●	●	●	●
	Passenger capacity seated (subject to specification)	up to 29		up to 41	up to 54	up to 53	
	Air-conditioning in the driver's cabin						
	with electrical drive	○		○	○	○	○
Ventilation and air-conditioning	Air-conditioning in the passenger compartment						
	with electrical drive	○		○	○	○	○
	Ventilation system						
Electrical system	dual-function fans (blowing and extraction facility)	●		●	●	●	●
	Wiring looms and boards						
	CAN-Bus based electrical system	●		●	●	●	●

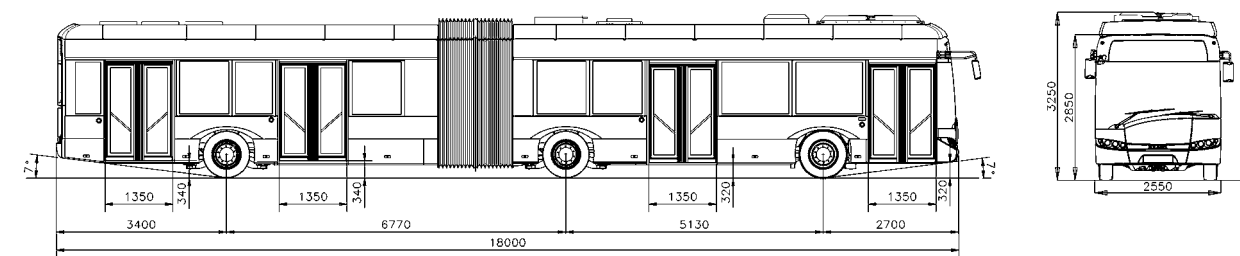
* available in specified equipment configurations



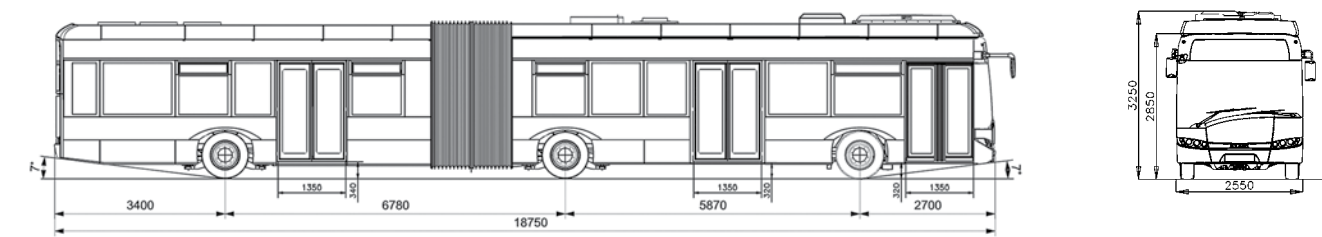
Urbino 8.9 LE electric



Urbino 12 electric



Urbino 18 electric



Urbino 18.75 electric



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