

The background of the entire page is a photograph of a modern, multi-lane road intersection. In the foreground, a blue sports car is turning left, while a white hatchback and a red car are moving forward. Several cyclists are also present, riding across the intersection. Traffic lights are visible on poles, and the sky is bright blue with scattered white clouds. In the distance, there are green fields and a large industrial building.

SIEMENS
Ingenuity for life

Sittraffic One: The world's first 1Watt Technology

Economical. Safe. Innovative.

[siemens.com/mobility](https://www.siemens.com/mobility)



The most energy-efficient
intersection of all times:
Sitraffic One
with two global firsts...

What is not used will not have to be paid for. For the budget managers in municipal transport departments, this implies first and foremost that they need to save energy wherever possible – while maintaining the highest safety standards. Sitraffic® One is the world's first solution to meet both of these requirements since it consists of a complete suite of 1-Watt devices designed according to the strict SIL3 safety standard.

Global first #1: Save 1,600 kWh of power and 960 kg of CO₂ – per intersection and year

Called Silux2 VLP, the "Very Low Power" signal head of Sitraffic One definitely lives up to its name: This innovative signal head needs no more than 1–2 Watt per aspect, making it the most energy-efficient solution on the market with additional energy savings of 80 % compared to today's standard LED technology. This means that all signal heads of an intersection will need only about the same amount of energy per year as a typical fridge-freezer. Hence, at an intersection of average complexity, Sitraffic One will reduce annual power consumption by about 1,600 kWh and CO₂ emissions by 960 kg. Conversion to 1Watt Technology from Siemens would cut the annual energy costs of a city like Berlin by more than €500,000 – year after year!



Global first #2: Controllers AND signal heads certified to SIL3 safety standard

Our 1Watt Silux2 VLP signal head is equipped with both a conventional voltage and current monitoring unit and a novel optical monitoring function. This raises our signal heads to what is currently the highest safety level for traffic control equipment: SIL3. An independent test institute has certified full conformity with SIL3 standard. Sitraffic One is the first system in the world to include both controllers and signal heads designed according to the strict SIL3 requirements set down in EN 61508.

Extremely low power consumption plus particularly high safety standards – we are proud of the huge innovative leap we have taken in developing this as yet unrivaled combination and of the contribution it makes to higher road safety and a wider financial scope for the responsible municipal authorities.

Sitraffic One in a nutshell

Economical. Extremely low power consumption of only 1–2 Watts per signal head aspect with the new Silux2 VLP (Very Low Power) signal head with standard cabling

Safe. Full SIL3 conformity of both controller AND signal head thanks to the innovative optical monitoring function integrated in the signal head

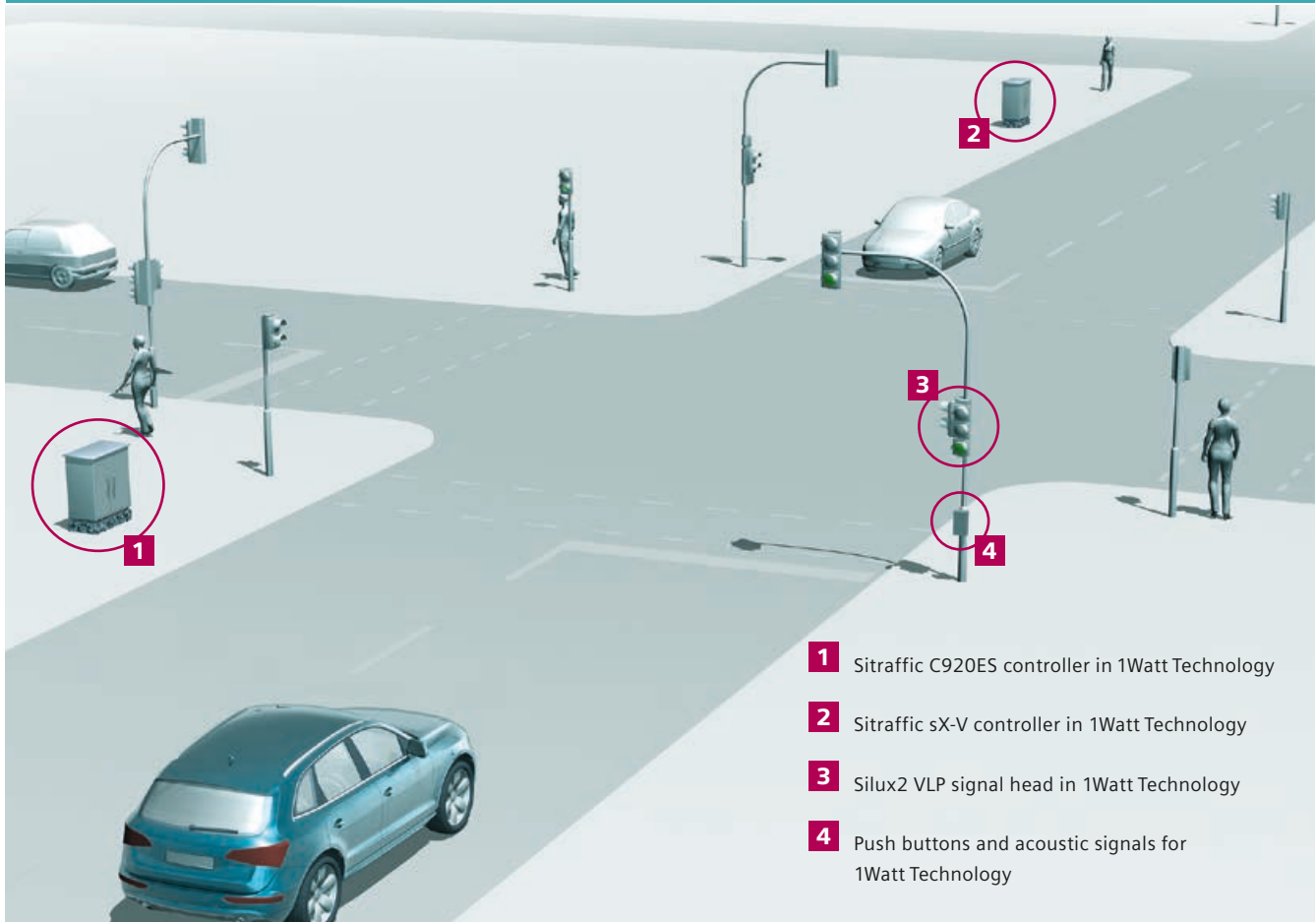
Robust. The decoupling of the signal head's 24 V DC power supply from the controller's mains supply makes system operation even more immune to mains fluctuations

Innovative. Digital LED components and two embedded microprocessors allow collecting a wide variety of operational data that will enable a range of future functions such as reliable prediction of LED failure

System compatible. Compatible with Sitraffic sX-V and Sitraffic C920ES controllers as well as with today's standard intersection design and cables (e.g. 1.5 mm²)

Complete set, including peripherals. Together with the renowned manufacturers RTB, Langmatz and Urich we have developed a suite of peripherals such as push buttons and acoustic signals for the blind designed specifically for use with the new 1Watt Technology

Sitraffic One: The world's first traffic light system in 1Watt Technology



The innovative 1Watt Technology is part of the world's most successful traffic engineering platform: Sitraffic. This means that our 1Watt Technology devices offer all the well-known advantages of the Sitraffic family, including ease of use and seamless integration in existing traffic control infrastructure. This is also reflected in the name that we have given this new innovative set of devices: "Sitraffic One". And of course, the new very-low-power signal heads Silux2 VLP score with the same advantages as the other members of the Silux2 family.

Sitraffic One: 1Watt Technology for the entire intersection

Sitraffic One is a complete intersection solution comprising signal heads, controller and peripherals based on innovative 1Watt Technology. The new 1Watt signal head Silux2 VLP (Very Low Power) with standard cabling is compatible with both our new Sitraffic sX-V controller and our established Sitraffic C920ES controller. We have also worked together with renowned manufacturers to design a whole suite of peripherals for use with our new 1Watt Technology system. Hence your future 1Watt intersection can be equipped from the start with fully compatible push buttons and acoustic signals for the blind from RTB, Langmatz and Urlich.

Special design for added protection against mains fluctuations

As more and more power comes from renewable sources, mains fluctuations are becoming more frequent. With our 1Watt Technology, the signal head power supply is decoupled from the mains supply of the controller.

The 1Watt power supply module can cope with unusually strong mains fluctuations and provides a stable 24-V power supply to the signal head. As a result, system operation is much more robust and easy to monitor, which provides for added safety and availability.

The new Silux2 VLP signal head: durable, compatible, available as retrofit ...

The new 1Watt Technology signal heads are available as retrofit kits as well as in Ecolight and Classic housings. For installation in a Siemens housing, the signal heads are equipped with a Siemens-type door for especially easy retrofit of existing installations. The new signal heads feature reliable driver modules based on robust and durable components. Exceptionally reliable and stable operation of the LED technology ensures high operational availability and an extended service life. Moreover, there is no need for cooling elements anymore since the LED light sources produce very little heat. In addition, the extremely low power consumption of only 1–2 Watt per signal aspect enables cost-efficient use of central DC power supply units.

... and with the ease of handling typical of Silux2

Just like all other Silux2 LED signal heads, Silux2 VLP can be equipped with various removable symbol inserts, which are designed as masks and can be easily fitted on the inside of the detachable front lens. Upon request, non-standard symbols are available at short notice. Replacing or rotating the symbol inserts can be done on site, thanks to the integrated door, whose easy-to-open bayonet lock is a real time saver.

Signal heads, traffic controllers and peripherals in 1Watt Technology – that is Sitraffic One



Silux2 VLP signal head: dual-channel optical monitoring function for highest SIL3 safety level

In addition to the conventional voltage and current monitoring module, Silux2 VLP is equipped with an LED monitoring function using an integrated photo detector. The detector measures the intensity of the incident light as well as other LED parameters and passes the data on to the LED electronics board. In the future, this will enable prediction of potential LED failures including point of time.

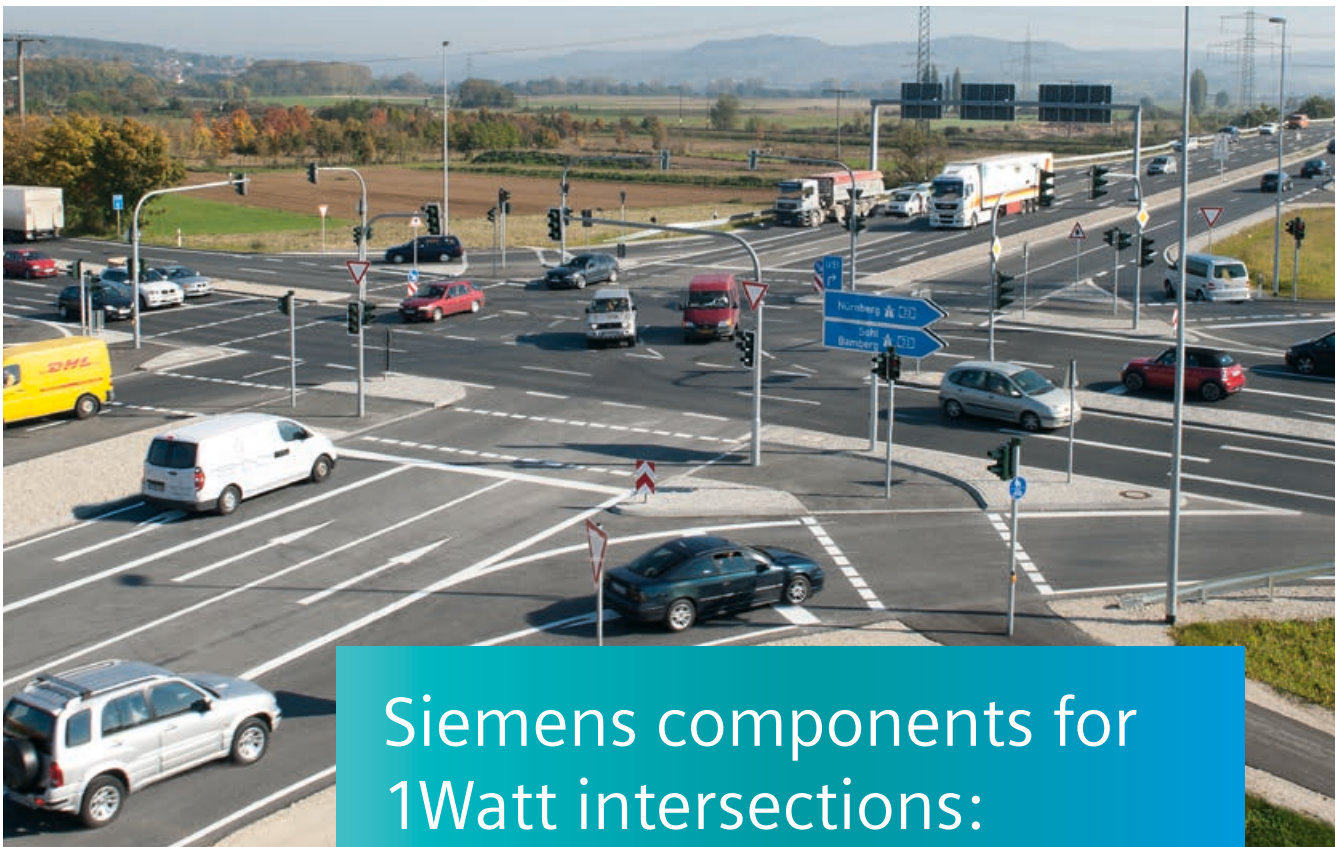
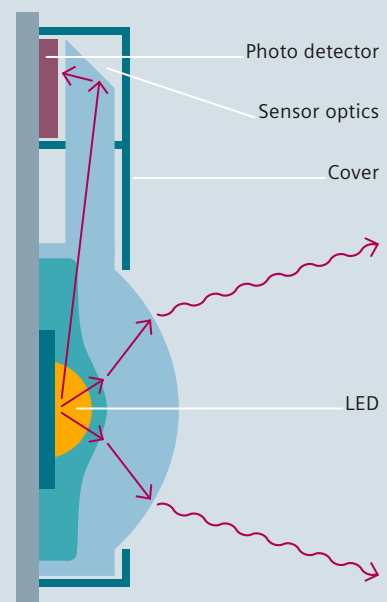
Optical monitoring function

Cover keeps out extraneous light

LED light reaches the sensor optics

The sensor optics deflects the signal light to the photo detector

The photo detector measures the amount of incident light and passes the information on to the LED electronics board



Siemens components for
1Watt intersections:
SIL3 signal heads and
controllers

Shared technical data – Sitraffic C920ES and Sitraffic sX-V controllers

Legislation, standards, directives	• DIN VDE 0832-100 (EN 50556) • RiLSA 2010 (EN 12675) • DIN VDE 0832-200 (EN 50293) • DIN VDE V 0832-500 • CE marking (includes EMC and NSR low-voltage directives) • EN 61508
Lamp switch types	VDE 24 V (LSVS) LED 1–3 W
Lamp types/signal head types	• 24-V LED signal head (1–3 W) • no dimming function • third-party products require prior approval
Technical data of lamp switching module	• up to 256 lamp outputs • one LSVS features 32 outputs with 32 switching elements • outputs are not assigned fixed signal states; every output can be assigned the states “disabled, enabled, transition” • each output is equipped with three terminals
Max. power per lamp output	Max. 12 W (4 × 3 W) with 24 V technology
Signal head cabling	• generally 1.5 mm² • 1 return per signal head recommended • car: 1 return per 2 signal heads also possible • ped: 1 return per signal group also possible
Detectors, inputs/outputs	• use of 4-channel detectors • use of video detectors • use of Radar & Sitraffic Wimag • use of AFD for receiving R09 telegrams
Signal monitoring	• dual-channel design based on fail-safe technology • monitoring of dangerous signaling states as per EN 50556 / EN 12675 • alarm message in case of contradictory signaling states and defective light sources • monitoring function using individual red-light sensors and total current sensors

Peripherals for 1Watt Technology

Push buttons	• RTB Type A, B, C, D, E, F, G, H, I • Langmatz Type EK533 + (crossguide) • Urich Type AS
Acoustic signals for the blind	• RTB Type Kombi-S

Model-specific technical data – Sitraffic C920ES and Sitraffic sX-V controllers

	Sitraffic C920ES	Sitraffic sX-V
Mains supply voltage	230 V AC (–20 % / +15 %)	230 V AC (–20 % / +15 %) 117 V AC (–20 % / +15 %) for export
Signal groups	Up to 48 signal groups per partial intersection	Up to 64 signal groups per partial intersection
Partial node	Maximum of 4 partial nodes	No partial nodes = 1 overall node
Processor	32-Bit Motorola Power-PC MPC8270/266 MHz/88 MB, can be expanded using IDE Flash cards	OMC: CPU with 32-bit x86 processor Vortex86D (Intel-based)/800 MHz/512 MB DRAM, Compact Flash card 1 GB
Operator control / data supply	- manual control unit, functions as per DIN EN 50556 (VDE 8032-100, DIN VDE 8032-110) with 4-line LCD display for fast access to operating states and system events - full range of diagnostic capabilities available via the Sitraffic Service software for PC - data supply via the Sitraffic Control software for PC	- manual control unit, functions as per DIN EN 50556 (VDE 8032-100, DIN VDE 8032-110) with 4-line LCD display for fast access to operating states and system events - full range of diagnostic functions accessible via the Sitraffic sX Web user interface - standardized data input via Sitraffic sCore PC software - modification of main parameters via the Sitraffic sX web user interface
Control centers	- Sitraffic Canto - OCIT control center - VNET-S	- Sitraffic Canto (UMTS & Ethernet) - Plug & Play connection to Sitraffic control centers
PC tools	User-oriented service software, downward-compatible so it can also be used for C800: - Sitraffic Office (Control) with uniform concept for proven functions and features - Sitraffic Service, offering all required communication and testing tools for operator control, testing and fault diagnostics	- Sitraffic smartCore software for PC with configuration wizard for intersections of average complexity - data supply for one-click traffic-actuated control via Sitraffic sLX module - automatic calculation of an intersection topology diagram and the required data for the signal monitoring function
Web user interface	Data supply and modification for main parameters and establishment of connection to control center	- Sitraffic sX HTML5 Web user interface offering all functions for monitoring, operation and diagnosis - fully automatic online visualization of intersection layout based on the automatically generated intersection topology - data supply and modification of key parameters (automatic annual switching routines, phases, signal plan times)
Traffic-actuated control	- programmable logic using structured charts and flow charts in Sitraffic Office language - with GCCOMP compiler driver for the creation of executable code on the C900 platform - Open-source compilers from the Linux environment can be used free of charge - PDMe (e = extended), module library for phase control with distributed modification - MXe (e = extended), calculation of signal frame plan for Sitraffic Motion - S-Le (e = extended), parameterizable standardized control method, phase-oriented - VSP-e (e = extended), VS-PLUS for C900 - NORRA-e (e = extended), LHOVRA technology	- Sitraffic sLX, phase-oriented traffic-actuated control based on apportionment and requests - fixed-time control based on signal groups - configuration via user-driven menus in Sitraffic smartCore

Technical data – Silux2 VLP signal heads		200 mm	300 mm
Optical properties in conformity with DIN EN 12368			
Luminous intensity distribution		A2/1, B2/2	A3/1, B3/2
Axial luminous intensity – typical value	red, amber, green	> 200 cd	> 400 cd
Dimmable		no	no
Radiation characteristics		W	N
Uniformity of luminance		> 1:10	> 1:15
Color coordinates according to DIN EN 12368	red amber green	613–631 nm 585–597 nm 489–508 nm	613–631 nm 585–597 nm 489–508 nm
Symbol class		S1	S1
Electrical and mechanical properties			
Operating voltage		24 V DC	
Power consumption	red, amber, green	1–2 W per aspect	
Power factor		> 0.9	
EMC		according to EN 50293	
Lenses		system-specific colored or neutral lenses	
Standard versions of symbols		as symbol masks	
Protection class of LED insert		IP65	
Resistance to mechanical impact		IR3	
Operating temperature		–40 °C to +60 °C	
Relative humidity		20 % to 95 %	
Housing colors		black RAL 9005, fir green RAL 6009, pebble gray RAL 7032	
Compatibility with controllers			
Sitraffic C920ES, Sitraffic sX-V			

Sitraffic One: Components for 1Watt intersections

Sitraffic C920ES traffic controller

Part of the C900 range, the C920ES has been equipped with a signal monitoring function for optimum use with 1Watt Technology. It combines high performance, maximum operational reliability and fail-safety with ease of adaptation to any new requirements.

Sitraffic sX-V traffic controller

The new, Web-enabled traffic controller can be operated via a PC, tablet or smartphone and expanded at any time to match the growth of the city's traffic infrastructure.

Silux2 VLP signal head

The new, digital 1Watt Technology signal head is certified according to the strict SIL3 safety standard. With redesigned optics and electronics, it is available with a signal diameter of 200 or 300 mm for installation in Ecolight and Classic housings or as retrofit kit.

**SIL3 certified
as per EN 61508**

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Subject to changes and errors.

The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

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