Sitraffic C920ES traffic controller

Maximum energy efficiency thanks to 1Watt Technology

siemens.com/mobility
Sitraffic C920ES: Ideally equipped to meet the needs of the future!
The new Sitraffic® C920ES controller offers innovative functionality for the operation of your traffic signal systems – with maximum safety and energy efficiency. Of course, Sitraffic C920ES shares all the proven talents of the Sitraffic C900 controller family: It combines high performance, maximum operational reliability and fail-safety with ease of adaptation to any new requirements, as confirmed by the SIL-3 certificate according to EN 61508 and the DIN V VDE V 0832-500 certification of the signal monitoring module. Whatever tomorrow may bring, with its C family of controllers, Siemens ITS always has the right answer.

**Global first: 1Watt-Technology**
In combination with Siemens Silux2 VLP (Very Low Power), the world’s first 1Watt signal head, the C920ES controller reduces the energy consumption of traffic signal systems to the lowest level ever. In addition to this environmental benefit, an intersection equipped with SIL3-certified VLP signal heads and C920ES controllers scores also with a unique safety level.

**Dynamic and flexible:**
**Processor and operating system**
The heart of Sitraffic C920ES/940ES is the ITS Engine processor equipped with a BBX control module. The MPC8270/266MHz Power PC uses the Linux operating system. A powerful processor, a flexible operating system and a large range of external interfaces add up to an ideal basis for your traffic control system.

Sitraffic Canto:
The link between control centers and field devices of different manufacturers
Like all devices from the C9x0 range, Sitraffic C920ES can be connected to any Sitraffic Scala traffic control center via our communication system Sitraffic Canto (Communication in Advanced New Technology for Outstations).

The key advantages of this system:
- high-performance, low-cost communication hardware
- highest possible security level for data transmission
- wide variety of communication options, such as V34 modem, Ethernet, fiber-optic cable
- cost-efficient central control via wireless links using public communication channels, such as Internet/GPRS
- standardized communication solution for the entire system

As for 40-W technology, the lamp switch of the new signal monitoring unit offers 32 user-configurable, current-monitored outputs.

Sitraffic Canto: High quality and reliability in combination with secure and future-proof connectivity enable maximum system responsibility.

It’s good to know that you can truly count on your equipment – for the long term!

Traffic control devices from Siemens have always been synonymous to technical progress, ever since the first traffic light signals in Germany were installed on Potsdamer Platz in Berlin in 1926. Be it PLUS or 1Watt Technology, state-of-the-art user interfaces, or ever more powerful processors – municipalities can always be sure that solutions from Siemens incorporate the latest technological advancements for a future-proof investment. Siemens: a company to rely on – yesterday, today and tomorrow.
The controllers of the Sitraffic C family are easy to configure via Sitraffic Office, the new software for the Sitraffic world. Sitraffic Office is the successor of the proven Sitraffic Control data supply program. With an updated but familiar look & feel, its uniform concept covers the customary functions as well as the latest innovative features. The software is a convenient tool for shared use by traffic engineers, operators and service technicians.

**Transparency is key**
Sitraffic Office pools all data in a single central data base. This eliminates the need to enter the same data several times, minimizing the risk of mistakes and preventing errors due to double entries. Sitraffic Office Language is the core of this unique system of software programs to help you solve the complex issues of modern traffic control. Using structograms, traffic control tasks can be easily converted into code. No programming skills needed! The module libraries offer ready-made solutions for a whole range of individual tasks and routines.

**Phase-oriented control methods (PDM): Time-saving function and user libraries**
These libraries do not contain books, but pre-programmed and fully tested function modules and solutions. PDM provides you with a complete system-side library of convenient functions based on predefined solutions. The user library serves to store user-defined modules, which can be named at will and flexibly combined with existing PDM modules. Sitraffic Office Language ensures smooth and easy integration of all modules. In their “personal program code”, the users can incorporate all pre-defined functions, both from the PDM library and the library of user-defined modules. In this way, each completed project adds valuable modules to the library, saving a lot of programming time in later projects.

**Control logic S-Le: No programming needed – just parameterize**
Standardized and still highly flexible? With Sitraffic Office, this is no contradiction: The Sitraffic Office Language component S-L is the perfect answer to the demand for standardization since it already combines and integrates the different modules required.

All the user has to do is adapt the predefined logical sequences to the requirements of the intersection to be controlled – with simple parameterization. A task that requires no programming skills. And for all cases that call for special solutions or major modifications of standardized solutions, Sitraffic Office Language provides convenient tools that help solve these tasks elegantly and quickly.

**Integrated network planning M-Xe: Controllers and traffic computers in perfect harmony**
Sitraffic Motion adaptive network control keeps gaining in importance. Sitraffic Office Language caters to that development. Its M-Xe component makes frame plan calculation truly simple: It ensures perfect coordination between the central control method carried out by the Sitraffic Scala traffic computer and the local control methods implemented in the controllers of the Sitraffic C900 family.

**Standardized control method VSPE**
This software package contains a standardized, parameterizable control method, thus offering all the advantages of traffic-actuated control without the need to develop the typical user program.

**The service tools: Setting new standards in user-friendly solutions**
Sitraffic Service provides tools for operation, testing and fault diagnostics, covering all function levels from fully graphic visualization up to detailed expert data.

**Always at hand: The mobile operator unit**
The basic version of all controllers of the Sitraffic C900 range includes a hand-held operator unit with a 4-line LCD display. The unit provides the technician on site with on-the-spot information on current operating states and system events – quickly and easily.

The software tools of the Sitraffic C900 family open up a fast and direct route to an optimum traffic control solution.
Widely used, proven software tools with a familiar look & feel
## Sitraffic C900 family: Technical data

<table>
<thead>
<tr>
<th>Model-specific data</th>
<th>Sitraffic C920ES</th>
<th>Sitraffic C940ES</th>
<th>Sitraffic C900V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains supply voltage</td>
<td>230 V AC (–20 % / +15 %)</td>
<td>230 V AC (–20 % / +15 %)</td>
<td>• 230 V AC (–20 % / +15 %) for export only</td>
</tr>
<tr>
<td>Supply voltage for signal heads</td>
<td>24 V</td>
<td>40 V</td>
<td>Mains supply voltage</td>
</tr>
<tr>
<td>Max. admissible total load (lamp load)</td>
<td>0.4 kVA for 24 V (25 A)</td>
<td>1.0 kVA for 40 V (25 A)</td>
<td>4.0 kVA for 230 V (17 A)</td>
</tr>
<tr>
<td>Fuse protection for signal heads (lamp load)</td>
<td>• 7.5 A per lamp switching module</td>
<td>• 20 A per lamp switching module</td>
<td>• 2 × 10 A per lamp switching module</td>
</tr>
<tr>
<td>Permanent-load limits (lamp load)</td>
<td>• Max. 120 W per lamp switching module (32 LED switches)</td>
<td>• Max. 640 W per lamp switching module (32 LED switches)</td>
<td>• Max. 2300 W per lamp switching module (8 signal groups with 3 aspects each)</td>
</tr>
<tr>
<td>Technical features</td>
<td>• 48 signal groups in a partial node</td>
<td>• 48 signal groups in a partial node</td>
<td>• 48 signal groups (C900VX, C900VPX), max. 32 signal groups per partial node</td>
</tr>
<tr>
<td>Lamp switch types</td>
<td>VDE 24 V, 1 Watt Technology</td>
<td>VDE 40 V acc. to OCIT® speczification</td>
<td>VDE 230 V</td>
</tr>
<tr>
<td>Lamp types/ signal head types</td>
<td>24-V LED signal heads (1 to 3 W)</td>
<td>Standardized 40-V LED signal heads (5 to 9 W)</td>
<td>230-V lamps (40 to 150 W)</td>
</tr>
<tr>
<td>Dimmability</td>
<td>No</td>
<td>For standardized 40-V LED signal heads (5 to 9 W). Acoustic signals for the blind and request buttons for pedestrian signals must be compatible with dimming function.</td>
<td>Yes. Please respect specifications!</td>
</tr>
<tr>
<td>Mixed installations LEDs/lamps</td>
<td>No</td>
<td>No</td>
<td>Yes. Please respect specifications!</td>
</tr>
<tr>
<td>Signal head cabling</td>
<td>• Generally 1.5 mm²</td>
<td>• Generally 1.5 mm²</td>
<td>• Generally 1.5 mm²</td>
</tr>
<tr>
<td>Acoustic signals for the blind</td>
<td>Compatible with various makes and models</td>
<td>Devices must be suitable for 40-V technology</td>
<td>Known range of devices from various suppliers</td>
</tr>
<tr>
<td>Pedestrian signal request devices</td>
<td>Compatible with various makes and models</td>
<td>Devices must be suitable for 40-V technology</td>
<td>Known range of devices from various suppliers</td>
</tr>
<tr>
<td><strong>Shared data</strong></td>
<td><strong>Sitraffic C920ES, Sitraffic C940ES, Sitraffic C900V</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Laws, standards, directives** | • DIN VDE 0832-100 (EN 50556)  
• RILSA (EN 12675)  
• DIN VDE 0832-200 (EN 50293)  
• DIN V VDE V 0832-500  
• CE marking (includes EMC and low-voltage directive)  
• EN 61508 |
| **Ambient temperature limits** | –25 °C to +55 °C outdoor temperature |
| **Power consumption of control unit** | ca. 20 W, max. 75 W |
| **Technical features** | • Fully electronic design, central unit with 32-bit Motorola Power PC MPC8270/266 MHz processor  
• 88 MB memory, can be expanded with IDE flash cards  
• Interfaces  
  • 11 serial interfaces (plus 3 optional interfaces via SEM)  
  • 2 Fast Ethernet  
  • USB interface  
• Optional public transport module in accordance with R09xx or R10xx  
• Universal adapter for connecting modules that do not conform to the system |
| **Data storage and archiving** | 4 archive memories with different properties:  
  • 8 MB in. flash for system  
  • 32 MB IDE flash, max. 4 MB for archives  
  • 64 MB SDRAM, max. 4 MB for archives as RAM disk, not buffered  
  • 2 MB SRAM, max. 1.5 MB for archives, battery buffered  
• Optional CF flash card of up to 1 GB with FAT or FAT32 file system |
| **Backup concept** | • Data recorded over a long period of time, stored on a correspondingly large compact flash card  
• Data supply can be defined separately for each archive. |
| **Control centers** | • Sitraffic Canto  
• OCIT control centers  
• VNET-S |
| **System clock pulse** | 1 s |
| **Signal monitoring** | • Two-channel setup based on fail-safe components  
• Monitoring of unsafe signaling states in accordance with DIN VDE 8032-100  
• Alarm message in case of contradictory signaling states and defective light sources  
• Selective disabling of the partial node in which the unsafe signaling state has occurred |
| **Operator control / data supply** | • Manual control unit, functions as per DIN EN 50556 (VDE 0832-100, DIN VDE 0832-110), 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 |
| **Timer** | • DCF  
• GPS  
• Quartz clock pulse |
| **Flashing pulse** | 1 Hz or 2 Hz |
| **Off state** | • Off mode for each partial node  
• Off-flashing  
• Off/all amber flashing |
| **On/Off switching** | Signaling states freely selectable, signal plan-related On/Off switching patterns |
| **Signal patterns for vehicles/pedestrians** | Any signal pattern possible |
| **Types of control** | • Central control mode for road traffic  
• Local mode  
• Manual mode  
• Phase coordination  
• Automatic annual switching routine |
| **Data logging** | Polling of detector inputs at intervals of 10 ms, with configurable plausibility check |
| **Software** | • OS-independent boot loader  
• LINUX operating system with RTAI real-time expansion  
• C900 firmware (real-time process, system process, traffic actuation, control center process) |
| **PC tools** | User-oriented service software, downward-compatible so it can also be used for C800 controllers:  
• 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 |
| **Traffic-actuated control** | • Programmable logic with Sitraffic Office Language (structograms/flowcharts)  
• with GCCOMP compiler driver for generating executable code on the C900 platform  
• compiler – from the LINUX world – can be used as open-source, free of charge  
• PDM-e (e = extended), module library for phase control with distributed modification  
• MX-e (e = extended), calculation of signal frame plan for Sitraffic Motion  
• S-Le-e (e = extended), parameterizable standardized control method, phase-oriented  
• VSP-e (e = extended), VS-PLUS for C900 |
<table>
<thead>
<tr>
<th>Sitraffic C920ES</th>
<th>The latest controller for complex control applications involving 1Watt Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitraffic C940ES</td>
<td>Our 40-V LED controller with leading-edge signal monitoring, for 48 signal groups</td>
</tr>
<tr>
<td>Sitraffic C900V</td>
<td>Basic traffic controller of the C900 family, for 230-V LED light sources and various lamp types</td>
</tr>
</tbody>
</table>

Sitraffic is a registered trademark of Siemens AG.

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.

© Siemens AG 2016
All rights reserved

Printed in Germany
160/79473 WS 03163.0
Dispo No. 22300
Order No. MOMM-B10109-00-7600

Siemens AG
Mobility Division
Intelligent Traffic Systems
Otto-Hahn-Ring 6
81739 Munich
Germany

siemens.com