SITRAFFIC Canto communication system

A technological leap in center-to-field communication

Intelligent Traffic Systems

SIEMENS

SITRAFFIC Canto: Take advantage of all the benefits of a future-oriented technology – with your existing equipment!

SITRAFFIC® Canto, the new communication system, offers today's most advanced communication technology for application in a traffic control engineering context. Canto stands for "**C**ommunication in **a**dvanced **n**ew **t**echnology in **o**utstations." The system enables continued use of your existing traffic controller installations, including those that still conform to the BEFA 5 standard, while creating the basis for using modern technologies such as DSL, OTN, fiber optic cable, etc. It also allows the seamless combination of conventional copper cables and new communication networks.

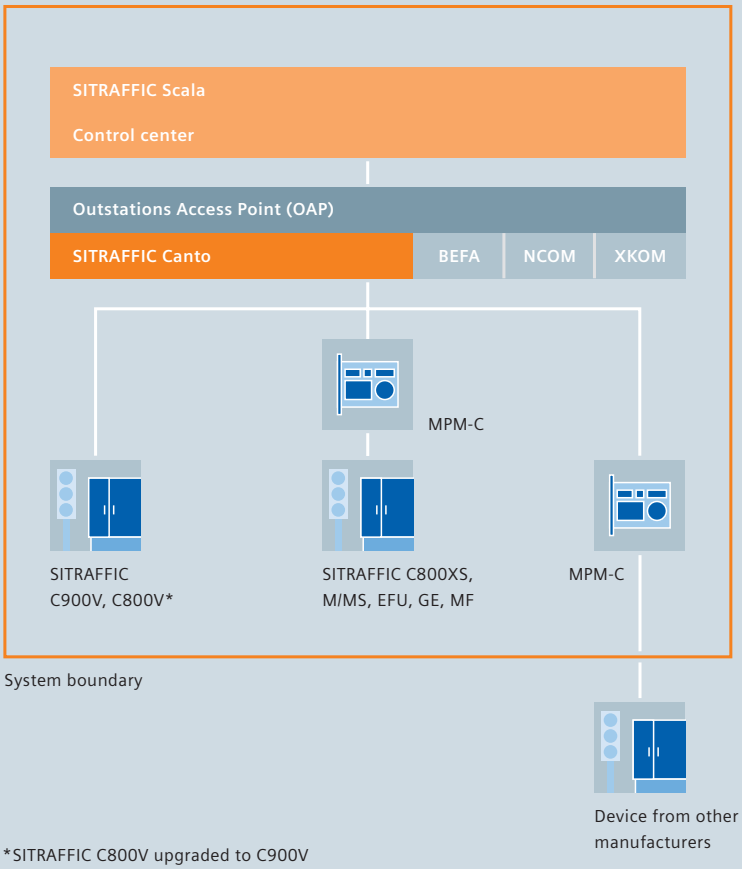
Latest technology for center-to-field communication

Optimum traffic management in today's world requires high-performance data links between intersections and the control center for very fast data exchange and frequently also for the parallel transmission of very large quantities of data to multiple recipients. With SITRAFFIC Canto you can benefit from all modern transmission technologies: fiber optic cable, LAN, OTN, mobile radio links and Internet connections. Now you can connect far more traffic signal installations to a single wire pair than ever. This gives you a maximum of communication capacity – at lower costs.

Smooth migration from BEFA to Canto

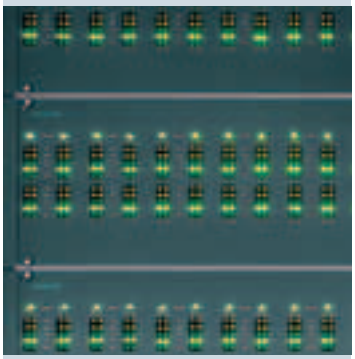
New communication technologies usually go hand in hand with high extra costs because they tend to require new terminal devices. With SITRAFFIC Canto, existing traffic control equipment in the field is anything but "scrap metal"! When developing the new communication system we have made sure that you will be able to continue to use your existing equipment. So there is no contradiction between installing a new control center and keeping time-tested outstations.

The control center and the traffic controllers are linked together via multifunction modules (MPM-C) that are either directly integrated or installed upstream



*SITRAFFIC C800V upgraded to C900V

The traffic computer must have sufficient capacity for fast and reliable control of even widely branching traffic nodes. SITRAFFIC Canto provides everything you need for these control tasks



Traffic controllers such as the SITRAFFIC C900 are already fully equipped for modern communication. For (practically) all other types, the MPM-C adaptation module is all that's needed

SITRAFFIC Canto can also communicate via fiber optic cable networks

SITRAFFIC Canto: A flexible answer to your needs that uses the installed technology base

V.34/PPP dedicated line operation: the ideal solution for existing cabling

When? Whenever your upgrade plans call for direct migration from BEFA to SITRAFFIC Canto and the use of an existing cable link, this is the best connection option.

How? A point-to-point link between the control center and the traffic controller is set up via modem. The connection is established via PPP using the TCP/IP protocol; on good-quality lines the maximum transfer rate is 28.8 kbit/s.

Advantages: In dedicated line operation, the switch from BEFA 5, 8, 12, 15 (17) to Canto is mostly unproblematic and straightforward. The connection is adequate for transmission of process and control data (raw and aggregated data).

Dedicated line operation via Ethernet: DSL or fiber optic cable – whatever you need

When? Whenever the system layout requires networked operation of local controllers and a high data throughput, and an existing Ethernet ring (LAN) is available, this is the optimum type of dedicated line operation for SITRAFFIC Canto.

How? The local controllers and the control center each have a direct Ethernet link; the distances in-between are bridged by as DSL (i. e. copper) or fiber optic cable connections. In case some local controllers are located more than 150 meters from the fiber optic cable line, DSL lines and fiber optic cables can also be used in combination.

DSL advantages: Compared to a V.34 connection, DSL offers a many times higher data throughput, enabling fast remote configuration and control (remote access, etc.). This significantly lowers control center hardware costs (as the customary modem cabinet is not needed anymore), reduces line lengths and thus maintenance expenses, and enables the use of the installed communication infrastructure for traffic monitoring and detection purposes.

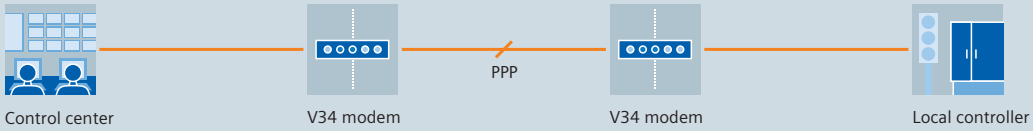
Fiber optic cable advantages: The benefits of fiber optic cable connections include, in addition, extremely high data throughputs (up to 1 Gbit), zero susceptibility to electromagnetic interference, and an extremely long lifetime, which ensures highly favorable total lifecycle costs for the investment.

A first: SITRAFFIC Canto-G (GPRS), a wireless connection used as " dedicated line"!

GPRS is based on the GSM standard with special focus on faster data transmission. Throughout central Europe, this format offers close to 100 percent coverage. The special advantage of this technology: Control centers no longer need to be equipped with radio technology; high-bandwidth Internet access is absolutely sufficient. This opens the door to a quasi-dedicated line for which fees are payable not on the connection time but on the data quantity transferred. In comparison to GSM connections, this results in considerably lower operating and hardware costs.

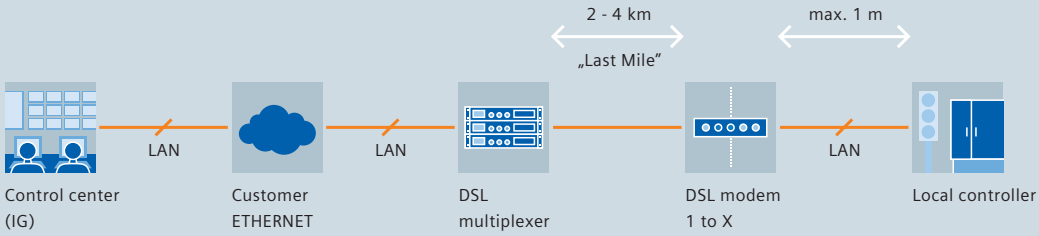
Since this cost-effective connection type uses an Internet link, data security has top priority. The required high degree of security has been built right into SITRAFFIC Canto: connections are established via VPN and therefore comply with the highest encryption standards, comparable with the security levels generally implemented in Internet banking.

V.34 PPP dedicated line operation



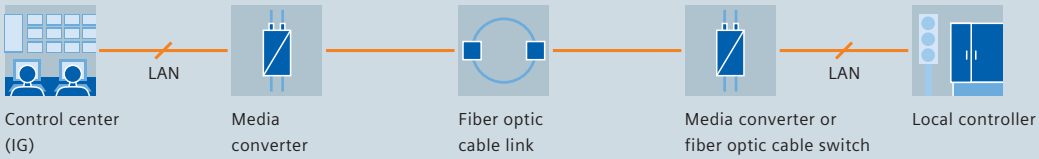
Dedicated line operation via V.34 interface and PPP/TCP/IP protocol: the ideal solution for existing cabling in all cases where relatively low data transmission capacity is adequate

Operation via Ethernet



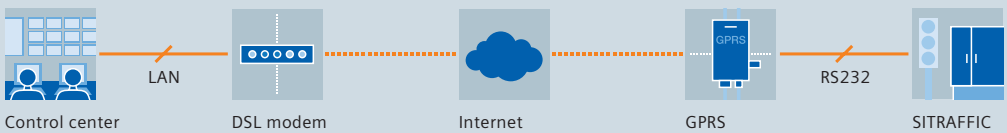
Dedicated line operation via Ethernet/DSL link: several times faster than a V.34 link and no need for modem cabinet

Use of fiber optic cables



Dedicated line operation via Ethernet/fiber optic cable link: speeds of up to 1Gbit/s and zero susceptibility to electromagnetic interference

SITRAFFIC Canto-G/GPRS profile (prospective stage 2 layout)



Advantageous "quasi-dedicated" line via GPRS profile and Internet: an innovation in center-to-field communication

SITRAFFIC Canto: Unprecedented performance – and cost-effectiveness – in center-to-field communication!

SITRAFFIC Canto represents a giant leap forward, in both technological and economical terms. Instead of proprietary modules, high-quality standard components are now being deployed in the traffic control arena. Standard components that really deliver the goods: packed with new functionalities, they significantly outperform traditional solutions and, for the first time, allow central control of traffic intersections trough wireless links and public networks. It all makes for a far more economical system solution than today's conventional technologies.

Much higher transmission capacity

Compared to the old BEFA landscape, the new Canto world means vastly improved data transmission performance. The transmission capacity provided by the "Partyline" function, for instance, is several times higher than that of BEFA 16 systems, thus enabling connection of up to 32 traffic signal installations to a single wire pair. The previous limit stood at 8 or 16 installations per line!

Agreeably economical communication via public networks

SITRAFFIC Canto enables the use of public networks (GPRS) for center-to-field communication. Thus multiple intersections can be controlled simultaneously, and cost-effective "dedicated lines" can be established so that it's the quantity of data transmitted, rather than the connection time, that determines the costs. Not only is it possible to stay permanently online, it also makes the most sense to combine the high availability of a physical line with the benefits of a wireless link.

Encryption for total security

To enable the use of public networks, the encryption level we have built into SITRAFFIC Canto matches the high levels customary in Internet banking. This ensures that access is only available to authorized maintenance staff.

Amazingly compact new central modem hardware

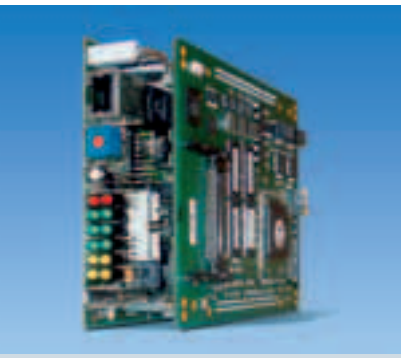
SITRAFFIC Canto keeps a low profile in the control center: the new modem hardware occupies just a quarter of the space needed by previous models, so that each rack can accommodate 64 modems instead of 16.

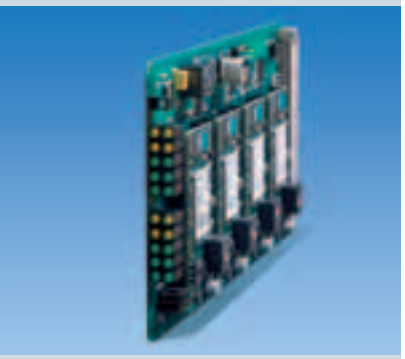
Below you will find details of the communication profiles that can be used with SITRAFFIC Canto.

Infrastructure is expensive. We'll make sure that you can use it for as long as possible

The pace of innovation in the field of transport engineering increases by the day. So the biggest challenge is to benefit intelligently from new developments while assuring the best possible investment security for already installed assets. Siemens has long been known for managing this difficult situation in such a way that customers can rely on maximum long-term protection for their investments. Our innovations in the area of traffic computers and control systems have always been based on efficient migration strategies that offer economic advantages to the customer. And the SITRAFFIC Canto communication system is no exception.

The MPM-C control unit (top) allows even the integration of rather old devices into SITRAFFIC Canto. The ZMA-M1 quadruple control center modem (bottom) establishes the link with the traffic controllers





Siemens transmission technology that can be integrated in SITRAFFIC Canto:

BEFA 5/6	from 1974
BEFA 7	from 1974
BEFA 8	from 1978
BEFA 12	from 1984
BEFA 15	from 1984
BEFA 16	from 1996
BEFA 17	from 1997

Siemens traffic controllers that can be integrated in SITRAFFIC Canto:

GE	from 1975
M32	from 1976
ML/MF/MQ	from 1983
MK/MS	from 1987
MP/MSP	from 1990
MR	from 1995
SITRAFFIC C800*	from 1999
SITRAFFIC C900	from 2006

*when upgraded to C900

Valuable assets: traffic controllers of practically all generations …

Based on a common networking infrastructure, nearly all the traffic control devices installed in the field today can be operated using the new communication system: modern SITRAFFIC C900 units as well as older devices such as GE, MF, FU M32, EFU, MP, MQ, MR, MS – right back to controllers dating from 1975! Traffic controllers of the SITRAFFIC C800 range can easily be upgraded to C900 by installing a Canto module – a very simple option for modernizing field equipment. Canto supports all systems except those with signal group remote control.

… and IP-based communication networks

The new system is based on the TCP/IP transmission protocol. Wherever there are existing communication networks that use this protocol (e. g. OTN networks), it is especially easy and economical to put SITRAFFIC Canto into action.

For further information, please contact:

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