So traffic can really get moving again
The roads are not getting wider. Yet despite more traffic everyone is moving faster.

Most cities today are faced with the problem of having to accommodate an ever-increasing traffic load on the existing road network. The fact that this problem can actually be solved, and at an affordable price, is being convincingly demonstrated in many cities—by SITRAFFIC MOTION MX. Through optimized traffic light control, the system enables the existing infrastructure to handle a good deal more traffic than before.

Less congestion, less noise, less emissions

SITRAFFIC® MOTION® MX substantially improves traffic flow, which has in addition an important, positive (!) impact on fuel consumption and emission levels: in comparison to stop-and-go traffic, smooth traffic flow reduces fuel consumption by up to 20 percent, nitrogen oxide emissions by up to 50 percent and carbon monoxide production by up to 33 percent.
MOTION stands for "Method for the Optimization of Traffic signal control In Online-controlled Networks." MOTION MX is a software program that optimizes the switching of urban traffic lights in such a way that traffic moves measurably faster within the existing infrastructure. On the basis of measured data, SITRAFFIC MOTION MX produces precise estimates of current and future traffic situations, calculates the optimum signal plans with the aid of innovative algorithms and optimizes all control parameters. As the control system "keeps an eye" on the entire network covered and not just on individual intersections and is able to react very quickly to changes in actual traffic conditions, it is by far more effective than conventional systems.

Big effects, little expense

SITRAFFIC MOTION MX is extremely economical and helps safeguard municipal investments. The system can be operated in combination with older, existing controllers and transmission methods and flexibly adapts to any and all requirements. Optimizing the use of low-cost equipment through the application of a highly innovative control method is an argument that more and more customers find convincing.

Public transport on the fast lane

When it comes to giving priority to public transport, it is not enough to simply change the light to green, for instance, whenever a bus approaches. The traffic situation in the entire road network has to be considered. And that’s just what SITRAFFIC MOTION MX does in cooperation with the local controllers.

In a variety of ways the system includes public transport into its calculations and thus ensures the optimum interplay between central and local traffic control levels: On the network level, smooth passage is arranged for the bus along the entire bus route, and on the local level, priority is given to each individual public transport vehicle. By optimizing the overall traffic control process, the system not only speeds up public transport but shortens the travel times for private traffic at the same time. A good example for this double effect is the Copenhagen project described on the following page.
Smother ride for everyone with SITRAFFIC MOTION MX: in Copenhagen, Münster and many other places

MOTION is already smoothing the flow of traffic in many cities – for more punctuality and less stress. Experience shows that the system meets the most diverse requirements and gets its strengths to bear in applications of all magnitudes. Whether there are 3 intersections to control or 30, whether MOTION is part of a complex integrated traffic management system or used as a stand-alone solution – the system gets traffic moving in every case!

Example Copenhagen, Denmark: priority for mass transit

The task of the traffic control system in Valby, a municipal district of Copenhagen, was clearly defined by the customer: make service on the four municipal bus routes 20 percent faster without slowing down private traffic in any way. MOTION was not only able to fulfill this task, but even exceeded expectations.

Places where SITRAFFIC MOTION MX* makes traffic move faster....

<table>
<thead>
<tr>
<th>City, country</th>
<th>Traffic signal installations</th>
<th>Year installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abu Dhabi, United Arab Emirates</td>
<td>31</td>
<td>2006/Under development</td>
</tr>
<tr>
<td>Braunschweig, Germany</td>
<td>5</td>
<td>2005</td>
</tr>
<tr>
<td>Bremen, Germany</td>
<td>9</td>
<td>2004</td>
</tr>
<tr>
<td>Bremerhaven, Germany</td>
<td>9</td>
<td>Under development</td>
</tr>
<tr>
<td>Graz, Austria</td>
<td>50</td>
<td>2002/Under development</td>
</tr>
<tr>
<td>Heidelberg, Germany</td>
<td>3</td>
<td>Under development</td>
</tr>
<tr>
<td>Copenhagen, Denmark</td>
<td>36</td>
<td>2000/2002/2006</td>
</tr>
<tr>
<td>Krakow, Poland</td>
<td>approx. 70</td>
<td>Under development</td>
</tr>
<tr>
<td>Magdeburg, Germany</td>
<td>14</td>
<td>2005</td>
</tr>
<tr>
<td>Mannheim, Germany</td>
<td>8</td>
<td>2004/2006</td>
</tr>
<tr>
<td>Münster, Germany</td>
<td>24</td>
<td>2007</td>
</tr>
<tr>
<td>Odense, Denmark</td>
<td>31</td>
<td>2001</td>
</tr>
<tr>
<td>Piraeus, Greece</td>
<td>22</td>
<td>1998–2003</td>
</tr>
<tr>
<td>Prague, Czech Republic</td>
<td>21</td>
<td>2005</td>
</tr>
<tr>
<td>Stuttgart, Germany</td>
<td>30</td>
<td>2002–2007/At present: System integration phase</td>
</tr>
<tr>
<td>Vilnius, Lithuania</td>
<td>approx. 140</td>
<td>Under development</td>
</tr>
<tr>
<td>Warsaw, Poland</td>
<td>approx. 30</td>
<td>Under development</td>
</tr>
</tbody>
</table>

* Status 2007
Before-and-after analyses carried out by the customer showed that MOTION shortens travel times for all road users in Valby. Bus journey times were cut by as much as 27 percent, while the average speed of private vehicles has risen by up to 6 percent.

Example Münster, Germany: Coordinated green phases for 24 intersections on 6 road kilometers

Thanks to SItraffic MOTION and a new traffic computer, traffic on one of Münster’s main commuter routes is flowing much faster now. Even though not all intersections have been connected yet, and in spite of the construction site in the middle of the road section, average peak-time travel speeds have already improved by 9 to 14 percent.
SITRAFFIC MOTION MX: the first adaptive network control system with an OCIT interface

SITRAFFIC MOTION MX combines the benefits of central, online-optimized signal coordination with those of a local control system that can respond directly to traffic incidents. This is fully in line with the trend towards holistic consideration of the entire network and makes the system superior to all fixed-time and single-intersection control methods. As the world’s first system with an OCIT interface, SITRAFFIC MOTION MX is open for use with traffic technology components from a range of manufacturers and also effortlessly exchanges data with other components in the existing infrastructure.

One step closer to standardization

SITRAFFIC MOTION MX is the first adaptive network control system designed for the connection of various OCIT® devices. Communication with the connected controllers is carried out by means of a defined data telegram containing the MOTION signal plan information.

Network-wide optimization combined with local flexibility

SITRAFFIC MOTION combines the advantages of an adaptive network control system with the operative flexibility of a quick-response local intersection controller. This
The SITRAFFIC MOTION MX control circuit

1. Traffic count values and detected occupancy from the principal entry and exit roads are passed on the MOTION MX. As a rule, these data are already preprocessed by the controllers.

2. SITRAFFIC MOTION MX analyzes the values, supplements additional data and generates a coherent image of the network-wide traffic situation.

3. SITRAFFIC MOTION MX optimizes the control parameters for the signal plans and creates a network of coordinated green phases.

4. SITRAFFIC MOTION MX modifies the signal plans accordingly and transmits them to the local intersection controllers.

Double advantage relies on the intelligent distribution of tasks between the network control and the local controllers: The network control system provides a frame signal plan, which is updated every 5 to 15 minutes and includes cycle times, phase sequences, green-time split and offset times, while every controller still keeps all operative functions required for controlling private traffic and public transport.

As many-sided as traffic itself

SITRAFFIC MOTION MX is multidimensional in every respect.

- All control variables of the signal plans are considered: cycle time, green-time split, offset time and phase sequence.
- The system operates on two function levels: on the tactical level at intervals of 5, 10 or 15 minutes (cycle time, average green-time split, basic phase sequence and network coordination), and on the operation level at intervals of 60 to 90 seconds (cycle, current phase sequence) or one second (green time apportionment).

- The needs of all road users are born in mind: private vehicles, public transport, pedestrians and cyclists.

Flexible, modular and well equipped to meet future requirements

SITRAFFIC MOTION MX has a modular design. Individual modules for incident detection, signal plan evaluation and selection, as well as for signal plan optimization allow very precise adaptation to the individual requirements of every application. The system is also readily adaptable to different control strategies, no matter if the primary focus is on congestion management or on increasing the traffic capacity of existing roads and streets.

MOTION MX as part of the SITRAFFIC system: a powerful addition to a strong team

Our SITRAFFIC system concept stands for seamless, integrated traffic solutions from a single source. It consists of fully compatible components that can be smoothly integrated into a system to cover all aspects of traffic control and all related services. MOTION MX is an integral component of the central level of SITRAFFIC. This ensures that, now and in the future, SITRAFFIC MOTION MX can work smoothly together with all other essential components of modern inter-modal traffic concepts.
Technical requirements for SITRAFFIC MOTION MX

<table>
<thead>
<tr>
<th>Central level</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic computer system</td>
<td>SITRAFFIC Scala</td>
</tr>
<tr>
<td>Control method</td>
<td>SITRAFFIC MOTION MX as part of the online control system</td>
</tr>
</tbody>
</table>
| System concept | SF with BEFA 12 or BEFA 15
Advance step control
SV with BEFA 15
OCIT interface
(Open Communication Interface for Road Traffic Control Systems)
Canto (Communication in advanced new technology in outstations) |
| Operator control and visualization for SITRAFFIC MOTION MX | Within SITRAFFIC Scala |

<table>
<thead>
<tr>
<th>Local level</th>
<th></th>
</tr>
</thead>
</table>
| Controllers  | SITRAFFIC C900V
MIMS family, MR
MS with co-processor
Third-party equipment |
| Control method | PDM with MX
Other control methods |
| Detector equipment | Induction loop detectors
Passive infrared detectors
Video (lateral position)
Other: under development |

Seamless, integrated traffic solutions from a single source!

SITRAFFIC MOTION MX is part of a greater whole: SITRAFFIC, the intelligent traffic system from Siemens. This universal system includes components, systems and solutions for long-distance and urban traffic as well as for parking and traffic information. And, of course, it also comes with an outstanding range of services. If you’d like more details, simply get in touch with us!

For further information please contact:
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