# Amplex OpenCity SCADA™

Applying Holistic Smart Grid Intelligence

*Utility Intelligence™*

amplex

# Complete grid visibility

We need to reduce our carbon footprint, but at the same time, there is a constantly growing need for energy and water. That is why we must shift our focus to renewables and distributed energy and water supply.

There is a lot of hype about the Smart Grid. Can it really prove its worth by lowering consumption and improving energy? We believe it can. But focussing your efforts in the right place is essential.

Utility companies are challenged with demands for more energy and water, better quality, improved service, advanced reporting - all at a lower cost. With these conflicting demands, the utility companies are forced to make better use of the infrastructure they already have in place - transmission system, distribution equipment, etc.

## OpenCity SCADA™: Automating your Grid Network

A lot of money and effort have been put into the transmission and distribution networks. Not much attention is given to fully monitor and control all aspects of the network in a holistic view, and we believe this is where some of the biggest gains stand to be made.

Adding low-cost, intelligent agents throughout the grid, you get complete visibility of the entire water, power or district heating grid, in real time. This lets you:

- Pinpoint and minimize losses
- Adapt to change
- Streamline operations
- Improve workforce management
- Holistic collaboration to evenly harvest and distribute utility sources
- Accelerate repairs
- Improve service quality
- Simplify integration of renewable energy sources
- Distributed intelligence to increase reliability and provide country wide scalability

## Making an intelligent start

Taking on a Smart Grid project is a daunting task. Finding out where to start and deciding exactly what you need is almost impossible. That is why our solution allows you to start with small steps, and expand the system as needed.

Because the Amplex OpenCity SCADA™ solution is highly flexible and modular, you have the option of simply installing OpenCity SCADA™ in a few locations where knowledge is crucial. Later on, you can upgrade your installation with modules in more locations and at lower nodes for a full utility network overview.

OpenCity SCADA™ is complemented by other Amplex solutions within energy optimization in the utility network: GreenWise™ energy content management and MeterMind™ advanced metering infrastructure. Together, these solutions form the OpenCity™ platform that enables you to fully manage and control a reliable and highly cost-efficient utility grid.

*Utility Intelligence™*

## Distributed intelligence

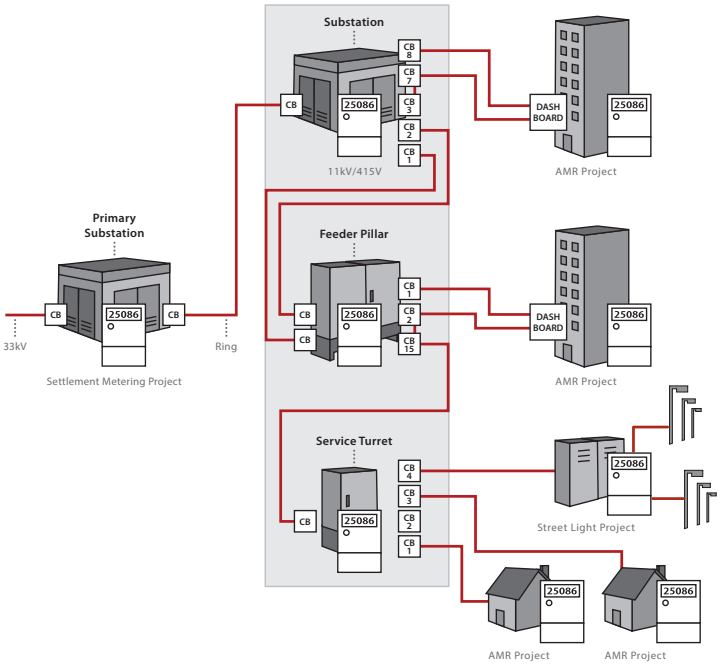
Instead of spending time and money on massive, expensive infrastructure systems, OpenCity SCADA™ builds on the assets you already have in your network.

Our innovative technologies integrate with almost any communications infra-structure within the utility grid to give you both environmental, financial and operational benefits.

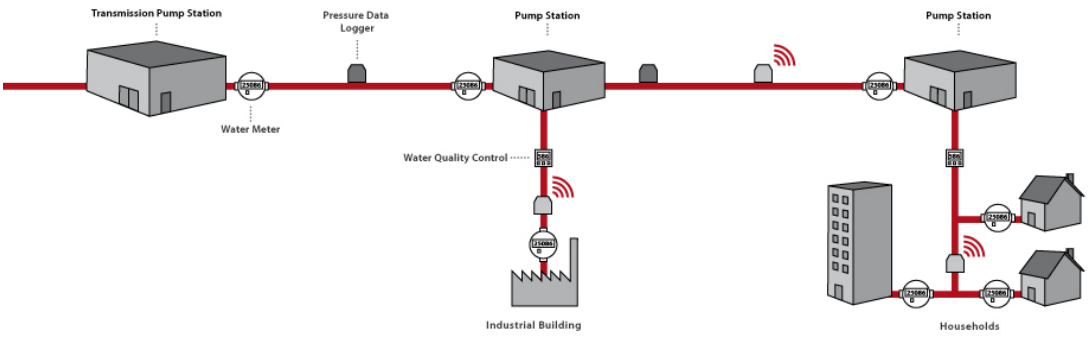
With distributed intelligence, you can monitor, control, optimize and automate your power, heat or water network. This will allow you to operate more efficiently and reduce maintenance costs while improving system reliability.

**Maybe you recognize these challenges?**

- Your existing equipment is outdated
- Leaks are difficult to locate
- Quality issues are costly and challenging
- Grid changes are tedious to keep up to date
- Outages cannot be prevented and tend to spill into other areas




*With circuit breakers, communication units and smart meters, your LV network becomes manageable and reliable.*




*Pump stations, flow meters, pressure sensors, water quality sensors and domestic meters in one unified smart grid.*

amplex

# Making connections

## Intelligent components provide complete visibility

### An automated decision-making system

With OpenCity SCADA™, you add intelligence at any level in the utility grid, and ensure that any source of utility can be integrated. This way, you transform the transmission and distribution network into a smart, efficient grid:

- Smart and flow meters in the distribution network (e.g. at sub or pump stations, treatment plants, stations), provide a complete overview of system efficiency and losses.
- Remote controlled, multi-functionality valves, circuit breakers etc give total protection and control of the grid elements. Potential overloads are discovered early, power or water flow is re-routed and outages are prevented.
- Linux-based CPUs with advanced communication features relay information to and from the central server and local data processing and analysis in the field. Local intelligence adds local actions even with communication losses to the central servers. This increases the reliability of the system in large rural implementations.
- Smart meters and sensors in the distribution network provide a level of granularity that lets you pinpoint losses and non-revenue consumption.
- The Amplex integrated control room solution gives you an overview of all distribution network systems, including smart meters, energy management systems and streetlights.
- OpenCity SCADA™ is a fully open solution for integration to workorder management systems, other SCADA systems, ERP and Callcenter solutions, GIS, etc. using industry standards like webservices.

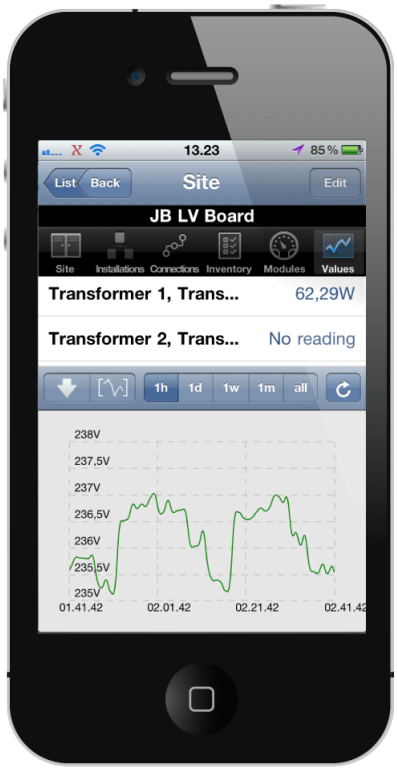
Amplex OpenCity SCADA™ does not just provide data and statistics, it gives you knowledge that you can convert to profit, on the bottom line *and* in you carbon footprint balance. Your customers will experience improved quality and be able to make informed choices for their utility consumption.

### GridTool™

The Amplex field tool, an app to the iPhone and iPad, gathers valuable data from the field and easily integrates the information to the control room. You can add information about cabinet inventory, connectivity to other sites, location, inventory pictures, etc.

With access to documentation in the field, the central operator and the local field worker have a powerful tool that will help them respond fast and efficiently to issues in the network.

Keeping track of field crews and their skills and equipment is made easy with the work distribution and work flow management tools.



## A Utility Intelligence™ component

OpenCity SCADA™ is part of the Amplex Utility Intelligence™ concept, our unique approach to helping utilities operate more efficiently and with less environmental impact.

Utility Intelligence™ is based on real-time monitoring, automation and control of any utility infrastructure asset including streetlights, low-voltage power networks, and smart meters.

Issues are discovered before they become problems, and expensive leaks are quickly identified and the cause pinpointed, allowing you to take appropriate measures.

Utility Intelligence™ is based on:

**Distributed intelligence**
Intelligent agents in the field that feed information back to the central server, letting you act on alarms and wasteful scenarios.

**Scalability**
The system and tools have been designed from the ground up to ensure that LV automation does not lead to a configuration management nightmare.

**Standards and open interfaces**
We use open standards to ensure that our solutions can integrate with existing equipment and is ready for future systems and add-ons. In addition, our solution is tailored for data collection to your available bandwidth. In the field we apply to industry standards like Modbus, Mbus, Wireless Mbus, ZigBee, Z-wave, DLMS/Cosim, ... - you name it.

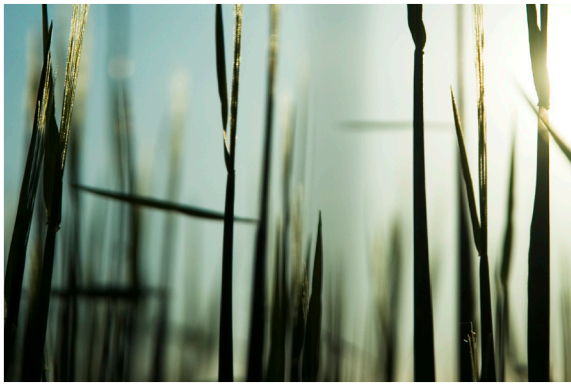
**Human-friendly technology**
Our user interface is intuitive and the field tools for deployment and management are powerful, visual tools that embrace users at all levels.

**Communications**
Amplex solutions use any carrier, from GPRS, 3G and 4G to powerline communication, WiFi, Ethernet, fiber, SMS, WiMax and LoRa – or any combination.
We reliably handle local as well as wide area communications, and our system is optimized for, and can be tailored to a mix of the two, keeping costs down while ensuring that you do not miss out on important information from the field.

**Local logic**
If communications go down, our solutions are programmed to make the right decisions locally, reporting back when communication is restored. Communication problems should never bring a system to a halt.

**Cost-conscious thinking**
Solutions built from off-the-shelf components keep costs down and ensure easy support.

amplex



# Start today

## A modular approach and unlimited scalability allows you to start small and scale up when needed.

### System integration

Built on open standards, OpenCity SCADA™ offers interoperability with all utility systems, including Customer Information Systems, GIS and Call Center applications. The close integration gives your operators optimal access to data and a constantly updated system status.

### Data collection

An essential aspect of a well-functioning utility grid is knowing how to turn the extensive amounts of collected data into actionable insight. OpenCity SCADA™ is designed to provide timely and accurate interpretations of data, enabling the operator to make correct decisions when they are called for.

Actively using the collected data will help you to e.g.:

- Know when pipes, cables and devices should be replaced for the best financial performance
- Extend asset life in order to defer or avoid expensive asset replacements

### Asset management and optimization

Monitoring your utility network from a central location, you will be notified of fault states as they occur. With this information you can reduce outage minutes, repair faults faster, or avoid a number of faults entirely through early warning and selective flow and load disconnect and rebalancing. You will also be able to give your clients notifications on when you expect normalcy to be restored.

### Communications infrastructure

A robust and intelligent communications network is an essential part of a well-functioning utility network solution. Backhaul infrastructure is neither cheap, nor ubiquitous. Even when present, it may be of varying quality and reliability. Our solution has the unique ability to manage and switch between different IP and GSM-based WAN carriers to ensure that we use the best available carrier.

### Auto discovery

When new components are installed, they are automatically discovered and will establish communication with the rest of the system.

### Utility savings

At Amplex, we work on solutions that save energy and water. With OpenCity SCADA™, we cut down on energy consumption by:

- Applying more efficient control
- Limiting leaks/technical losses
- Reducing number of field trips and improving maintenance crew efficiency
- Preparing you for improved demand-response

Amplex OpenCity SCADA™ is a field-proven solution, backed by a precise, proven deployment methodology. High reliability and maximum uptime come as standard.

## OpenCity SCADA™ Initiate - a lightweight approach

Many utility companies may not be ready for a full-blown solution that encompasses all their field equipment.

At Amplex, we feel that it is worth starting small and learning a little more about your grid before committing to complex systems and expensive plans. That is why we offer a lightweight approach where you add equipment to only a few field locations. This way, you get an easy and inexpensive way of exploring the potential benefits of monitoring and controlling the entire network. You may even run the solution on the Amplex cloud servers for fast, easy and affordable implementation.

**Immediate payback**

With the OpenCity SCADA™ Initiate package, you gain an immediate payback from this initial setup:

- Early warnings to prevent failure
- Load/flow profile information for load/flow and usage analysis
- GIS and asset inventory management
- Faster fault detection and reduced service time
- Improved quality

**Growing with your needs**

The OpenCity SCADA™ platform will support your utility as your needs grow. By extending the initial solution with more features and equipment (e.g. additional metering, sensors and control points), you can achieve:

- Insight and control over outgoing circuits, valves etc.
- Integrated automated metering
- Environmental and quality monitoring
- Loss calculations
- Control and monitoring of distributed generation and production
- Centralized, remote load, flow and/or pressure control and restoration

With OpenCity SCADA™ Monitor, OpenCity SCADA™ Integrate and OpenCity SCADA™ Automate, your solution becomes increasingly complex and fine-meshed, allowing you to monitor and automate your utiility network while integrating renewables.

amplex

## Utility Intelligence™

Saving on utilities is our DNA no matter if it is power, water, cooling, gas or district heating. This lets you cut loss, drive down operational costs, minimise your carbon footprint and prepare for a smart grid future. It's time to evolve.

Amplex originated from the area of remote control and management of streetlight systems. Later on, our focus expanded to include intelligent metering and finally, we have added Energy Management, Smart Grid and Water Monitoring solutions to complete our portfolio.

Our mission is to be a world leader in Utility Intelligence. We want to help governments, cities, companies and utilities all over the world to intelligently manage their utility assets. The result: Greener cities, higher-quality services and dramatically lower costs.

Our solutions have unlimited scalability and are built on open platforms. With a modular, carrier-neutral platform, we provide real-time data from the field. Along with a constantly growing partner network, we have established a global presence and a solid experience in implementing energy efficient solutions in any environment.

amplex

Bødker Balles Gård 24-26
8000 Aarhus C
Denmark
Phone +45 7199 2525