

# Cable!vision

## Europe

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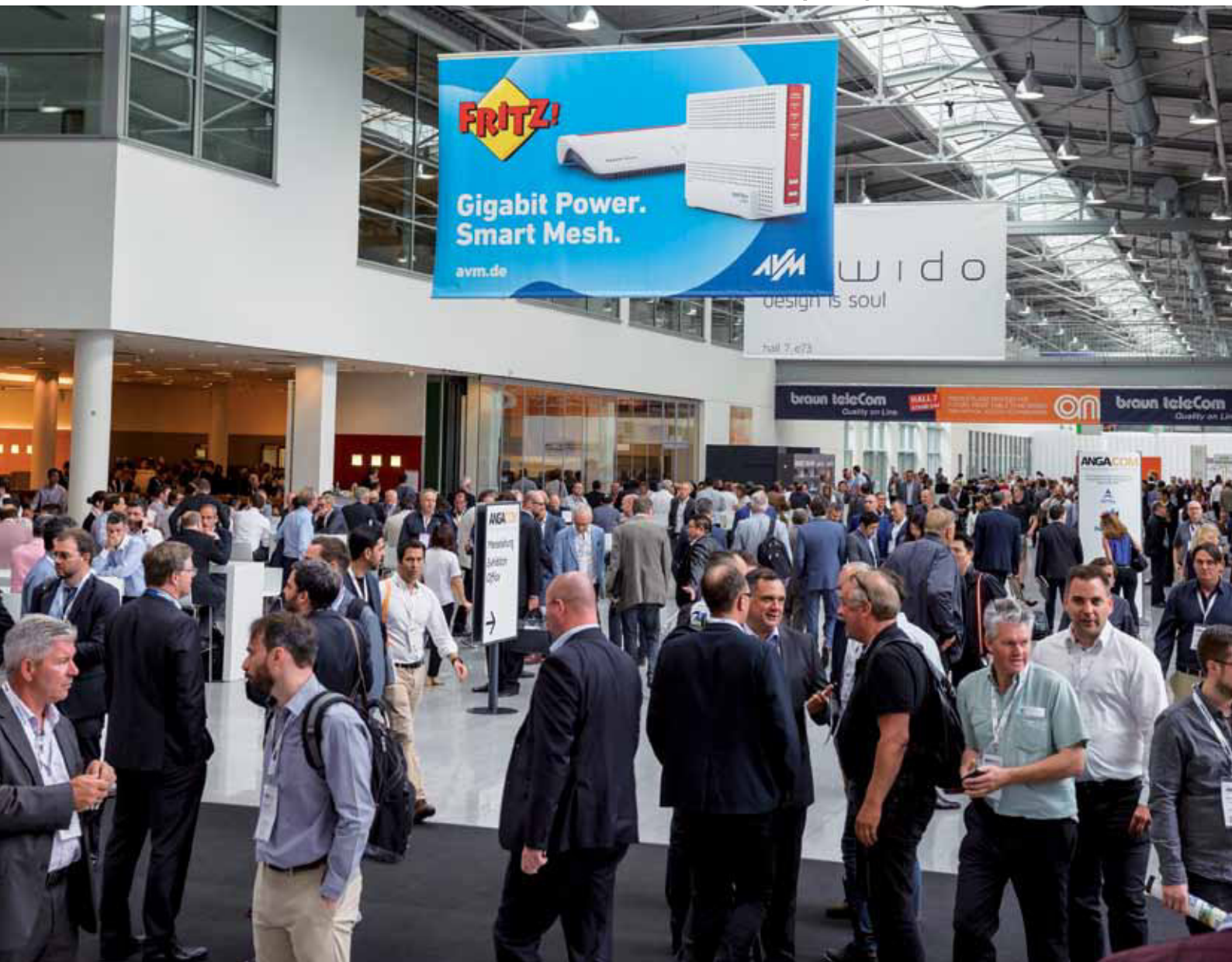
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**X** DELTA Electronics: Innovations for OPEX reduction

# Reduction of Total Cost of Ownership

DELTA Electronics presents innovations in the field of OPEX reduction

Cable-TV operators are under constant pressure to offer more bandwidth for less money. Network equipment suppliers are responding by developing ever higher quality devices to meet the demand for bandwidth. At the same time, the high transmission requirements only allow a small reduction of prices (capital expenditure = CAPEX). As the cable network operator must primarily consider the total cost of ownership (TCO = OPEX + CAPEX), the active reduction of operational costs (OPEX) through intelligent concepts is now often more efficient and thus reduces the TCO more visibly.



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## Influential blocks of operating costs:

- energy consumption
- installation costs
- maintenance/upgrade costs
- efficient integration into a uniform network management system
- simplification of warehouse and delivery logistics



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**Energy consumption:** electricity and energy costs (cooling) for the cable operator can represent up to 50 % of the total operational

costs. Here exists an extreme potential, which has to be raised by intelligent technology. Depending on the national electricity tariffs, the electricity consumption per 1 watt of electricity per

**The Authors:** Ulrich Kiebler, Chief Executive Officer DCT DELTA GmbH and Stephan Hilbert, Product Manager HFC DCT DELTA GmbH

year in Europe is calculated between 1 and 2 EUR (example: 1 watt per year = 8.76 kWh x 0.17 EUR per year = 1.5 EUR per watt per year). The cooling costs in the headend are not even considered yet. If it is possible to reduce the power consumption of e.g. an amplifier in the field by 5 Watts, this results in an OPEX reduction of 75 EUR over a service life of 10 years, which leads to a significant contribution to the product costs (CAPEX).

## Examples to reduce the energy costs are:

- Efficient power-saving design
- Remote control of output power setting
- Automatic regulation of the amplifier stage currents depending on channel assignment and current demand and not according to maximum values

It is also important to equip the power supply of the devices with a so-called Power Factor Correction (PFC), which reduces the (apparent) current load of the networks by up to 30 %. Depending on the power supply concept, this leads to real cost reductions, but certainly to a

relief of the networks, which prevents an expensive upgrade of the remote power supply architecture (CAPEX). This may also allow further devices in the network (e.g. 5G transmitting antennas) to be operated via the remote power supply of the cable network operators.

**Installation costs:** The less you have to adjust and measure the devices during a new installation or an upgrade, the faster and less error-prone the installation is completed and the associated costs kept within reasonable limits. A reduction of the different device versions supports the reduction of the installation costs as well. The possibility to configure the devices in advance, possibly with a simple copy and paste function via USB interface or app reduces further the cost. In addition, this eases the demand on the technical knowledge of the installers and the expense of the measurement technology required.



### Maintenance/ upgrade costs:

50 - 100 EUR per maintenance trip to a location are common. This means that each

change of settings and inspection on site results in this additional amount. Here all setting possibilities, which can be remote controlled from the head-end, are of great advantage. One of the main malfunctions that can occur in a network and cause many maintenance trips are "Ingress Noise" problems. If a device defect causes such ingress at a participant, it is important to limit the source of error as quickly as possible in order not to paralyze the communication for an entire cluster. It is also possible to switch the diplexer of the upstream during a network upgrade via the remote control, which prevents thousands of service trips and allows a network upgrade overnight. Many other such maintenance and upgrade ideas are conceivable via remote control and significantly reduce OPEX costs.

### Efficient integration into a uniform network management:

All elements in the network can be controlled and monitored centrally and effectively. In many cases, sources of error can be identified preventively

and fixed before signal failures occur. On the one hand, the service has to be used much less frequently in the field, and it has a positive effect on network availability and reliability.



### Simplification of warehousing and delivery logistics:

It is not new that a high product variety significantly increases logistics costs and often exactly the required product version is not on stock. Here, flexible and modular products are very helpful, i.e. different requirements can be covered with one product, e.g. by different setup. Examples are amplifiers with switchable gain values without loss of performance or optical nodes, where the wavelength can be varied so that an independent device type does not have to be maintained in logistics for each wavelength.

With regard to all the above points, DELTA Electronics is continuously expanding the functionality of its products and solutions.

At the this year's ANGA COM in Cologne, Germany, DELTA Electronics' booth (Hall 8, Booth P41) will present a wide range of innovations in the field of OPEX reduction.

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At ANGA COM DELTA Electronics presents new products and solutions in the field of OPEX reduction



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ASTRO Strobel Kommunikationssysteme GmbH  
Olefant 3  
D-51427 Bergisch Gladbach  
Phone: 0049-2204 / 405 - 0  
Fax: 0049-2204 / 405 - 10  
E-Mail: kontakt@astro-kom.de