

Mexico's pole-mounted solution for CCTV

Project: Mexico City's C414 urban surveillance

Date: 2014

Location: Mexico City

Partners: Emerson (now Vertiv), Telmex, Thales and CISCO

Challenge: Making sure all the surveillance cameras are powered 24/7 enabling to have a Smart & Safe city.

Solution: Combination of rectifiers and our standalone inverters to create a reliable solution for securing AC and DC loads.

Results after 5 years: 0,38% yearly average failure.

Overview of the project

With 22 million inhabitants and 5000 km² (1930.5 mi²) to secure, Mexico City faces many security risks. In 2009, Mexico City's government launched the project Ciudad Segura (Safe City), a program aiming to improve the authorities' reactivity to emergency, crisis and criminal acts. They started with 8000 surveillance cameras in 2009. As they were satisfied with the results, they installed 7000 other surveillance cameras in 2014 connected by a new fibre optic network capable of carrying the corresponding video streams. CE+T Power was part of the second phase of the project. In addition to surveillance cameras, the program includes two mobile surveillance units, a network of street police, environmental sensors that capture weather, seismic and other data, panic buttons and five regional stations situated in places where large groups frequently gather.



Problems and needs



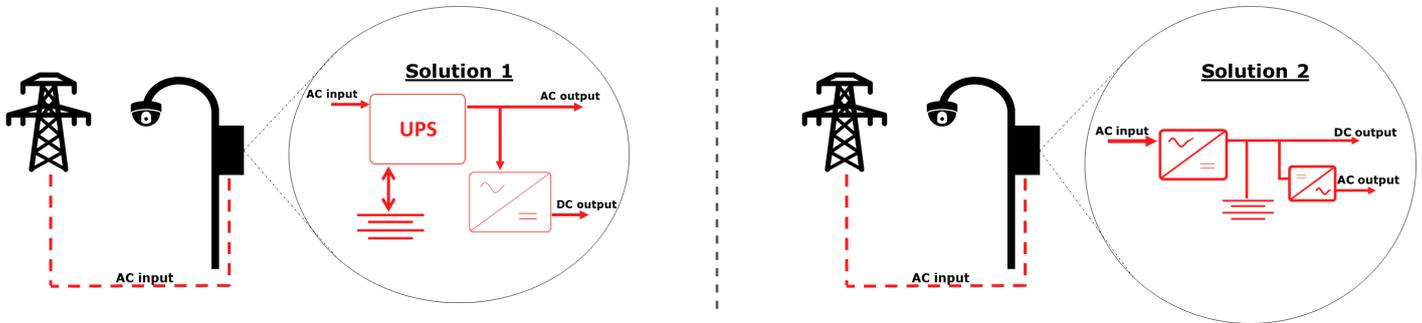
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The customer requirements are quite simple: the system must work 24/7 regardless of the power outage, disturbances on the grid, the harsh environment and the frequent stealing of batteries. The surveillance cameras (connected to the 48VDC batteries) must work all the time even when the power is off for a while, whatever the reasons. As Mexico City has a harsh environment, the equipment must resist to high temperatures, rain and air pollution. Moreover, the customer needs a solution capable of securing both DC and AC loads. It is obvious that without these cameras, the authorities have a restricted view of what happens in the city which leads to an increase of the crime rate.

CE+T Power's solutions

Two technical solutions

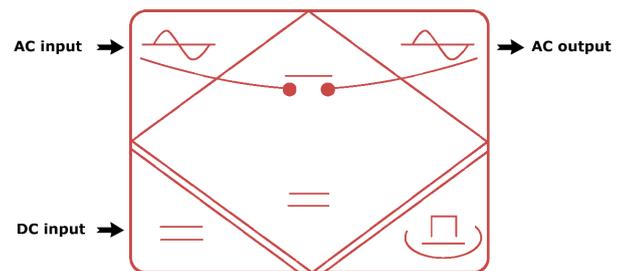
The first one was to install an UPS (to secure the AC loads) and a rectifier (to secure the DC loads). Small power UPS are most of the time cheap solutions that do not comply with industrial requirements. Reliability required by the customer was therefore not achievable with an UPS solution. The second solution was to install a combination of rectifiers and inverters. This combination has high reliability score and can support harsh environment.



Customer's choice

The customer tried the first solution with small UPS but had then to deal with many reliability issues. Following this problem, the customer decided to work with CE+T Power and switched to the second solution.

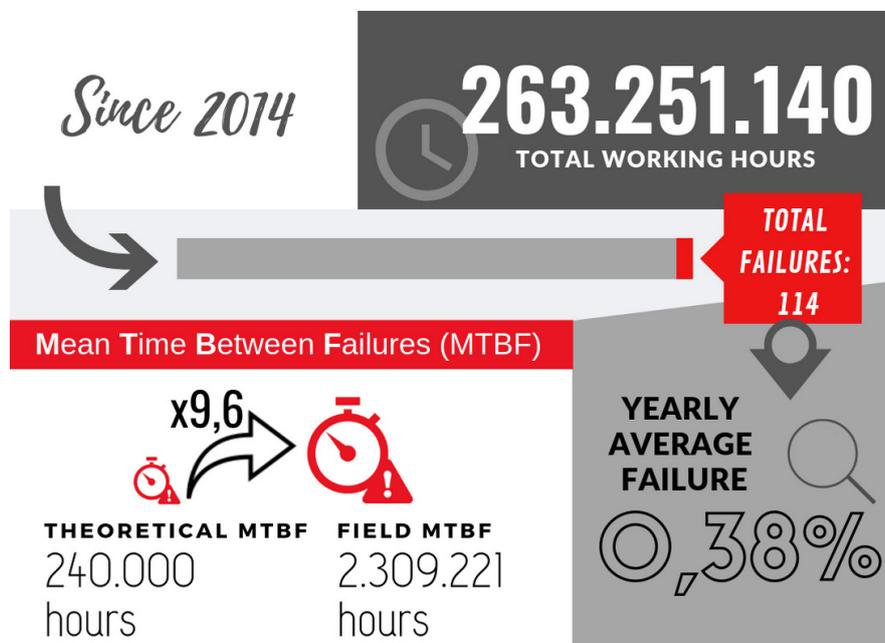
Indeed, CE+T Power being involved since its creation in 1934 in the telecommunication market, a very demanding industry, our inverters are the leading solutions in terms of reliability. Moreover, a highest conversion efficiency could be achieved thanks to an additional AC input connected to the grid and powering the loads; avoiding therefore multiple unnecessary conversions. Another benefit from our module is that even if the battery is out of order, there is still an AC input. These advantages motivated the choice to work with CE+T Power's solution as it best answered the requirements.



CE+T standalone inverter (Y-One)

Between 2014 and 2019, CE+T Power provided 8029 Y-One 48Vdc/120Vac in collaboration with 4 partners. This solution enables to have power all time and under all conditions.

Regarding the overall availability of the solution, our power converters have a very high score of reliability and a very low score of failure. In order to give a quantitative idea, there is only 0,38% yearly average failure between 2014 and 2019. Another important feature is the mean time between failures (MTBF). If we look at the last 5 years, the MTBF for the Y-One concerned in this project is 9,6 times bigger than the theoretical MTBF for this standalone inverter. This is the proof that our words fit with reality!



High reliability also solves maintenance issues

Simple fact: if the reliability is good, there will be few maintenances. Willing to avoid maintenance seems logic but it is even more important in cities such as Mexico City.

Driving in Mexico City is a nightmare. Indeed, according to INRIX 2018 Global Traffic Scorecard¹, Mexico City is the 4th most congested city in the world, people loses 218 hours in congestion during peak time and the speed during the worst portion of morning and afternoon commute is 16.28mph (26.2km/h).

In consequence, the mean time to repair (MTTR) is very high. As the surveillance cameras are located where there is a lot of traffic, only a limited number of cameras can be repaired per day because of the traffic congestion. Therefore, maintenance issues involve a lot of time and money for the customer. High reliability of the Y-One enables to reduce the number of on-site operations.

Impact for the customer

The project is a success: for example, the crime rate diminishes by 56% since 2009 and the time of emergency response went from 12 minutes to 2,09 minutes². All in all, by becoming a Smart City, Mexico City turned into a Safe City as well and CE+T Power is part of this success. Indeed, most of the orders were made in 2014 and 2015. It has been 5 years since their installation and it's still working even if the surveillance cameras model has been upgraded.

Searching for a reliable standalone inverter?

The Y-One used in this project is still available. In 120Vac, CE+T Power offers solutions in 500 and 1000VA. For the 230Vac applications, the Y-One exists in 500, 800 and 1500 VA. In 2019, our standalone inverters family welcomes the e-one range with 350 and 1000VA solutions. In order to meet our customers' needs, we also offer modular UPS, modular inverters and multidirectional converters.

To discover our standalone inverters range and see which products best fit your needs, simply contact us: [\(link\)](#)

Contact us

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 www.cet-power.com

¹ Source: INRIX, « 2018 Global Traffic Scorecard » [\(link\)](#)

² Source : Thalesgroup, « Mexico, le programme de sécurité urbaine le plus ambitieux du monde. » [\(link\)](#)