



TOTAL



# TOTAL migrates to Digital with DAMM TetraFlex<sup>®</sup>

## BACKGROUND:

TOTAL works in oil, natural gas and solar energy, and is the world's fourth-largest oil and gas company and second-largest solar energy operator. With more than 100,000 employees, TOTAL operates in more than 130 countries.

TOTAL Refinery Antwerpen in Belgium is TOTAL's largest Oil and Petrochemical Refinery. It covers more than 220 acres and processes with crude oil from Rotterdam in processing facilities including:

- Refinery
- Olefins
- Polymers

## CHALLENGE:

### Secure worker safety with a fast migration from analog to digital in 2014

TOTAL Antwerpen was using an analog Smartnet for communication. TOTAL Antwerpen has more than 1300 radio users every day, and approximately 70 groups, and with more than 60,000 calls every day the need for secure, reliable radio communication was essential.

The challenge was to successfully migrate from an analog to a digital solution providing secure radio communication in mission critical situations. Additionally the costs for the analog frequency license were increasing, so fast implementation was essential.

## SOLUTION:

### Secure Radio communication with DAMM TetraFlex

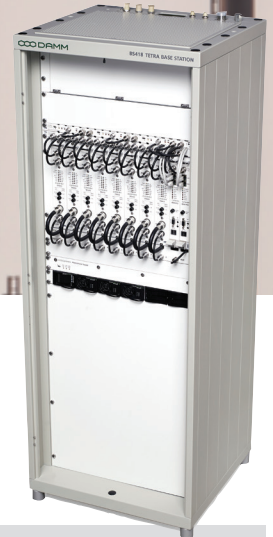
The TETRA technology proved to be the only true option for mission critical communication with features such as priority calls, logging and dispatching for emergency situations.

DAMM TetraFlex system was key to reach the goals of fast and easy migration, providing a flexible, scalable TETRA system based on a true IP backbone. FLASH Services, the DAMM Partner in Belgium, provided a complete solution to design, commission, operate and maintain a DAMM TetraFlex communication system:

- 4 DAMM TetraFlex Indoor Base Stations
- DAMM TetraFlex Log Server
- FLASH Dispatcher
- FLASH Management of ATEX TETRA radios

### Easy System Design:

4 Base Stations provide full coverage for an area of 220 acres. Using repeaters for tunnel installations, 2 additional TOTAL sites at the leftbank of the river Schelde are connected to the DAMM TetraFlex network. With the true IP backbone and the open API from DAMM TetraFlex, it was easy to add-on the custom-made FLASH Dispatcher, as well as the FLASH Online Portal - a full asset management tool helping TOTAL reduce the operational costs.



## CHALLENGE

To migrate from analog to digital, and provide secure critical radio communication in a challenging environment

## SOLUTION

Easy to design and commission solution with DAMM TetraFlex Outdoor Base Stations, a customised Dispatcher from FLASH Services, and ATEX radios in a true cost-saving rental service - all in one place.

## RESULTS

A secure TETRA radio communication system providing reliable coverage 24/7 to the largest TOTAL refinery in the world. Securing worker safety and improving performance, with a true TETRA solution and full asset management system.

**FLASH**  
SERVICES

*DAMM solutions and support are available worldwide through our Authorized Regional Partners*

# DAMM distributed architecture

## Easy Commissioning:

The system was commissioned in March 2014 and implemented gradually to secure the best result. The first steps were done in the smallest facility, Polymers, the second in Olefin and the third step included the largest facility, the refinery.

In July 2015 the system consisted of 1306 active radios. With 4 antennas and 7 frequencies, normally 60,000 calls were reached a day. During implementation the numbers were much bigger. When there were ongoing projects the system had up to 3000 radios on the site at the same time.

## Proven results based on a true Partnership

Today the results speak for themselves; TETRA is key to securing worker safety and improving performance. Great teamwork and partnership resulted in fast implementation of the most reliable and future-proof critical radio communication.

As a result of the close partnership between FLASH Services and TOTAL, a cost-saving measure was taken: Full asset management was made possible with the FLASH Online Portal, where FLASH Services was given direct access into the TOTAL communication system to share all information in one place.

Operational costs are reduced continually due to a more efficient management of the resources and equipment, using the FLASH Online Portal. With this shared Portal TOTAL can make better forecasts, for example by spotting radio failure trends early and addressing the problem accordingly.

As an example this service secures a prolonged life for radios, as FLASH Services can monitor the status of the system and anticipate/forecast needs and optimise the process accordingly. This reduces costs for TOTAL and also ensures a failsafe and fully operational pool of radios.



Map data: Google, DigitalGlobe

Calls are being made 24/7 and TOTAL has had up to 3000 radios on the site at the same time. In the daily operation half of the radios are used by production personnel, another large part is maintenance, then a small but very important part is used by safety and security personnel.

For instance, the refinery has around 1000 employees, with 500 being on shift at any one time in different teams and locations, and communication is secured using radio devices.

Wireless communication is very important to save costs. At TOTAL every device must be ATEX for safety reasons. TOTAL has ATEX radios available in the area that for example contractors are allowed to use when they are visiting the site and they need to make a call.

If this communication needed a cabled line or if a cable would break it would be quite expensive to manually dig to fix the problem.

In case of an emergency the crisis management team relies on the DAMM TetraFlex system for secure radio communication.

Initially the team meets in the control room to assess the situation and communicate accordingly. The Dispatcher is key to ensure both workers' safety, and prevent further crises. For documentation purposes the Log Server is located in a secure room and stores all voice and data activities before, during and after the incident.

A true advantage of TETRA is that you have priority whenever there is a lot of traffic and calls, e.g. in case of an incident. Then priority number 1 can be given to the intervention team, including the fire brigade.

## TOTAL - a Global Energy Operator

TOTAL is the world's fourth-largest oil and gas company and second-largest solar energy operator with SunPower. With operations in more than 130 countries, TOTAL has more than 100,000 employees who are fully committed to better energy.

*Read more at [www.total.com](http://www.total.com)*

## FLASH Services - a leader in radio communication

Flash Services Netherlands and Flash Services Belgium, both part of Flash Rental Services BV, are full-service organizations for mobile communication solutions.

*Read more at [www.flash-privatemobilenetworks.com](http://www.flash-privatemobilenetworks.com)*

## Explore more DAMM TetraFlex products and solutions:

### BS421 TETRA Outdoor Base Station

With its IP65 protection and compact design the BS421 Outdoor Base Station is ideal for installation in harsh environments and for direct mounting on antenna masts, buildings and towers, reducing feeder loss and installation costs considerably.

### BS422 HYBRID Outdoor Base Station

A cross-technology one-box solution offering TETRA, DMR Tier III, TEDS and Analog, and allowing hybrid usage in one coherent system.

BS422 offers improved synchronisation, improved redundancy, high power and extended frequency range.



The DAMM TetraFlex System comes complete with outdoor or indoor base stations. DAMM offers comprehensive features as well as built-in applications such as:

- Network Management
- Dispatcher
- Voice & Data Log System
- Group Bridge

You can use your tablet or smartphone to benefit from coverage extension, as well as data capacity for videos and pictures. The complete range includes Android, iOS and Windows soft terminals.

