

# IOT SCADA

## More Than 20 Billion Connected Devices

Satellite plays a major role in supporting the growing requirements of the Internet of Things and Machine to Machine (M2M), serving the vast number of connected devices in remote and difficult to reach areas.

For many years, satellite has played a vital part in Supervisory Control And Data Acquisition (SCADA) and M2M connectivity for oil and gas pipelines, smart grids, environmental monitoring and more. As the number of connected devices continues to grow significantly - bringing operators the benefits of increased operational efficiencies - satellite will remain an essential tool for providing connectivity to remote locations.

By offering an extremely cost-effective terminal as part of a scalable network solution, value can be provided for operational managers in the fields of earthquake monitoring facilities, oil and gas infrastructure, utilities, transport, energy distribution and environmental monitoring anywhere in the world. The advent of large scale renewable energy facilities like windmill parks in inhospitable areas can benefit from a SCADA network to optimize efficiency of energy generation and transportation.

**How to monitor and control your business operation in the most cost-effective way.**

**DIALOG**

powered by

**Newtec**  **iDIRECT**

## How It Works

The Dialog® platform provides the means to establish an “always-on” two-way IP connectivity between a Remote Terminal Unit (RTU) and the Internet or a private network, therefore remaining completely independent from existing terrestrial networks.

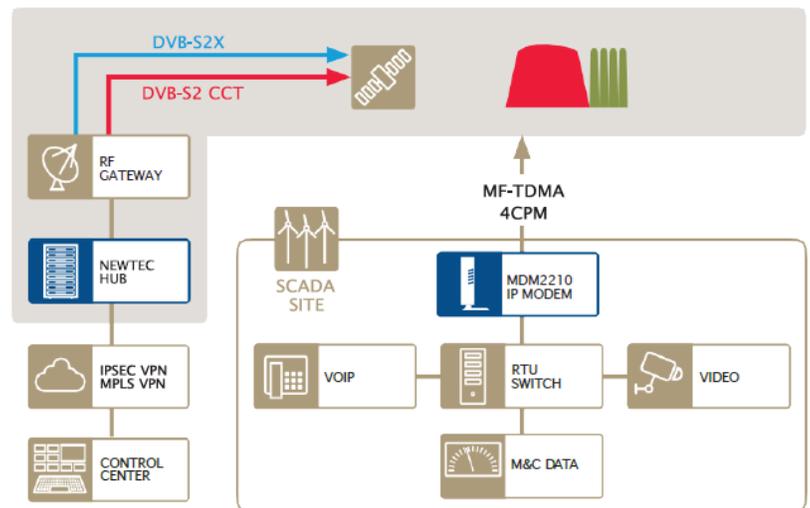
The basic IP connectivity is extended with Quality of Service (QoS) in forward and return, allowing the deployment of real-time services.

The system consists of a hub that can support thousands of remote terminals with a variety of service levels.

The hub contains management functionalities to monitor, configure and control remote sites in large geographical areas. Individual service configurations can be configured to meet specific requirements of a remote site.

To make satellite an attractive alternative for SCADA, the terminal implements the most bandwidth efficient technologies, such as DVB-S2X ACM forward link, 4CPM adaptive return link and embedded IP traffic enhancement software.

**“Always-on” two-way IP connectivity between a Remote Terminal Unit (RTU) and the Internet or a private network.**



## Security

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Confidentiality of exchanged information is guaranteed. Data can be directly communicated to the RTU using a single satellite hop. The communication end-points are authenticated which increases the security of the SCADA network.

Since the encryption is fully integrated in the system, it can be combined with traffic acceleration and compression, resulting in real-time network behaviour comparable to traditional delivery networks.

## High Availability at Minimum Cost

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ST Engineering iDirect's simple, yet very efficient implementation of Adaptive Coding and Modulation (ACM), doubles satellite throughput and customer satisfaction by providing 100 per cent link availability.

ACM technology is incorporated into the DVB-S2X standard, providing significant increases in bandwidth efficiency for satellite applications and allowing modification of modulation parameters of a satellite signal during almost any form of interference, without interrupting the transmission or losing data.

Since rain fades are statistically short and happen quite rarely over time, higher modulation parameters can be used most of the time. However, when SCADA requires a fixed transmission rate or a permanent high availability, the ACM technology ensures that the fade only affects one of the services. This mechanism gives the platform **extremely high availability at no additional space segment cost**.

Depending on the instant need at a certain location the required capacity can be varied. Our VSAT platform is capable of **dynamically allocating capacity over the different remote sites**.

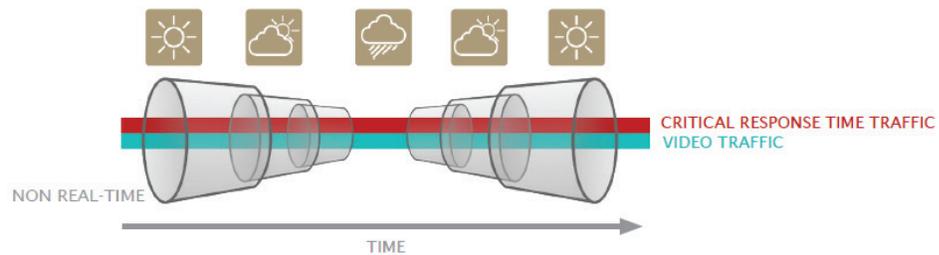


## Carrier Grade Availability 99.99 Per Cent

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The hub provides redundancy on all layers (user, control, management) and equipment. It has redundant RF signal and mains supply inputs. The redundancy is conceived as two fully redundant chains.

When there is a failure, an automatic switch over to the other chain is performed. Even during service windows there is limited downtime since upgrades can be performed on one of the chains with the other chain active in a previous version. A failure in the front-end is resolved by switching to the alternative RF input.



## Network Scaling

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Our VSAT platforms support services ranging from data-only to voice and video. For many SCADA applications, adding video will provide extra information when abnormal events are detected. Integrating video traffic in the SCADA network will improve operation efficiency by providing greater insight into events, thus diminishing the potential for damage caused by emergency events.

The platforms support the highest amount of terminals active with real-time response behaviour.

This system feature enables users to deploy large amounts of terminals on a minimal hub estate.

The modular and scalable hub allows users to start with a small scale installation, expanding it by means of a software license and gradually adding additional modules as the network grows or applications are added. The unique "pay as you grow principle" matches the inherent changes in size or capacity of the network with a flexible investment model.

## Versatile Service Guarantees

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ST Engineering iDirectVSAT platforms provides seven classes of services. Each of those traffic classes has specific transportation and shaping characteristics. This allows to define a matching QoS for the different traffic flows.

The real-time traffic classes assure that **delay and jitter performance are controlled even in fading and congested conditions.**

In a typical SCADA scenario, the critical data class would be used for the monitoring and control traffic requiring a consistent low latency.

The real-time classes would carry the video traffic that was triggered by an alarm or an operator request. It is guaranteed that this traffic would not interfere with critical SCADA traffic. The real-time classes can also be used for local technician service calls. The best effort class is then used for carrying on-site internet or intranet access.

**Take advantage of the real-time service class to view images of a guarded zone and permit the verification of false alarms.**

## Fast Deployment

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ST Engineering VSAT platforms can be operated as a single service provider platform or a multiservice provider platform. The latter gives the opportunity to start a service without investing into a full system.

The installation of the terminal can be done without any specific training. This means a correct and fast installation can be performed by a local technician of the remote site with no need for special equipment. The local technician is guided to perform the correct antenna pointing by the Point&Play© tool. The terminal comes pre-configured so no on-site administration is required, resulting in fast and risk free deployment.

## Low Power Consumption

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The terminal only consumes 20W typical and the DC power supply fits alternative power sources like solar cells. The low power consumption of the terminal finds its origin in the interactive LNB. It has a simple up conversion architecture and uses saturated power amplification without any performance penalty.



**“Fast and risk free installation by on-site technician. No special equipment needed.”**

