

Utilities satellite services

Flexible solutions for Smart Grid communications

Benefits

- Secure and reliable network with 99.9% availability
- Ubiquitous, global IP connectivity anywhere in a utility's service territory
- Cost effective and compact terminals that are easy to install and maintain
- Complete visibility to remotely monitor, control and update your remote terminal
- IP backhaul for smart meter aggregation points

Energy utilities around the world are developing 'smart' electricity grids that will facilitate greater control over energy consumption and costs. The US Department of Energy has stated that one of the "key technology areas of the Smart Grid is integrated two-way communications, which makes the Smart Grid a dynamic, interactive, real-time infrastructure!"

A range of interoperable communications will be required to make this type of system viable, including fixed-line terrestrial links and wireless networks such as cellular, WiMax and Satellite.

Extend communications on the grid

Inmarsat services can increase the operational efficiency and extend network reach across a utility's entire service territory.

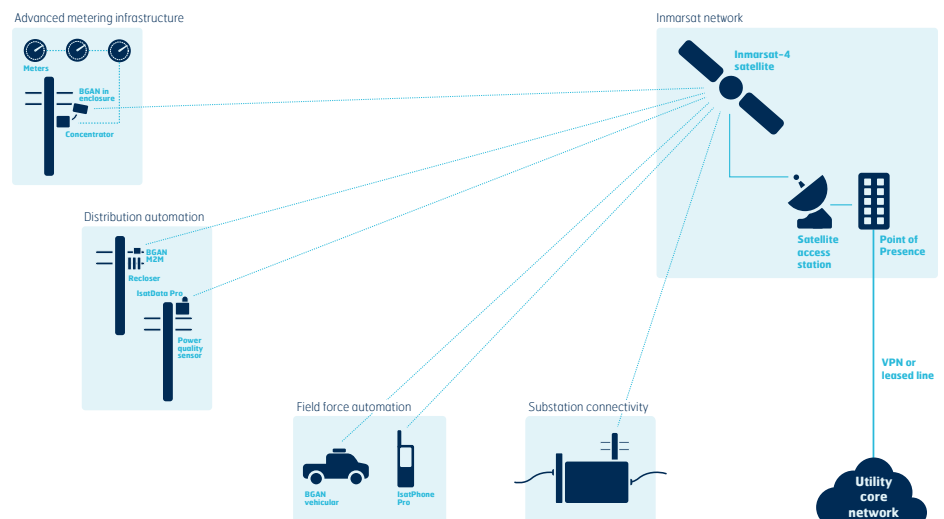
Satellite solutions

Inmarsat services play an essential role in the communications mix for Smart Grid deployments. The Inmarsat I-4 network is grounded in IP, which the National Institute for Standards and Technology (NIST) states will be an important Smart Grid standard². In addition, our wide range of M2M services are secure, reliable, and support a variety of data and power requirements for utilities.

Applications

Inmarsat's ubiquitous, secure and reliable satellite solutions are ideal for:

- AMI – securely backhauls consumption data from concentrators back to HQ
- Substation connectivity – stand-alone or back-up connectivity for your SCADA applications
- Distribution automation – remote monitoring and control of your power distribution lines



¹ Smart Grid RFI, 75 Fed. Reg. at 26,207

² NIST Interoperability Framework, Release 1.0, § 3.3.3 at 39 (Feb. 2010), available at http://www.nist.gov/public_affairs/releases/upload/smartgrid_interoperability_final.pdf.

Inmarsat services

Inmarsat offers a suite of ubiquitous satellite broadband, machine-to-machine and voice services to meet a utility's varied communications requirements and complements their existing communications services.

Application requirements	Smart metering	Recloser control	Fault detection & response	Workforce mobility
Transport Protocol	TCP/IP	TCP/IP or DNP-3	DNP-3 or Modbus or serial	TCP/IP
Bandwidth/Payload ¹	Medium	High	Low to Medium	High
Latency ²	Medium	Tight	Medium to Tight	Medium
Reliability ³	Medium	High	High	High
Security ⁴	Medium	High	High	Medium
Power	Mains	Solar or battery	Solar or battery	Engine or battery
Devices per satellite terminal	250	1	1	1
Typical daily transactions per satellite terminal	8	24	24	1
Typical transaction size (KBs)	312.50	1.74	0.08	166.67
Typical monthly data per satellite terminal (KBs)	75,000	15,000	58	5,000
Inmarsat Service*	BGAN	BGAN M2M	IsatData Pro	BGAN vehicular

Key

1 Bandwidth:

- Low** < than 10kbps
- Medium** 10 - 100kbps
- High** >100kbps

2 Latency:

- Loose** Can tolerate high latency in absolute terms and high variability in the latency
- Medium** Has some relative limits to the absolute amount and/or the variability of end-to-end latency
- Tight** Strict requirements for the absolute amount and/or the variability of the end-to-end latency

3 Reliability:

- Low** No significant operational harm would result if connectivity were lost for a significant (minutes to a few hours) amount of time

Medium Operations would be impacted, but unlikely to result in loss of service or similar impact if connectivity were lost for a significant (minutes to a few hours) amount of time

High Significant harm might occur if connectivity were lost for a significant period of time

4 Security:

- Low** No significant operational harm would result if link were intentionally compromised
- Medium** Significant but limited harm would result if link were intentionally compromised
- High** Highly visible and widespread harm could result if link were intentionally compromised

* Suggested service only as actual data volume and consumption may vary depending on location and configuration of application

BGAN

Inmarsat Broadband Global Area Network (BGAN) service offers simultaneous voice and IP data up to 492kbps.

The service is accessed via a range of portable, fixed and vehicular terminals making BGAN ideal for utilities requiring a broadband link for:

- > Transmitting bursts of high volumes of data in a fixed environment
- > Workforce in-the-field who require immediate, real-time access to information

BGAN M2M

Provides ubiquitous two-way IP data connectivity for low volume, high frequency bursts of data and supports SCADA applications.

BGAN PTT

A rugged voice dispatch and communication system that extends traditional push-to-talk (PTT) capabilities over hybrid data networks, that is then supplemented by the Inmarsat BGAN satellite network where no terrestrial network coverage is present.

IsatData Pro

IsatData Pro provides a global, low data rate service, providing a two-way packet data service for machine-to-machine communications, for both fixed and mobile assets.

IsatPhone Pro

A global satellite phone, purpose-built for the Inmarsat-4 network offering clear voice telephony, voicemail, SMS and short email messaging for remote communications.

How to buy

Call (North America): +1 805 783 4600

Call (worldwide): +1 805 783 4600

E-mail: sales@groundcontrol.com

www.GroundControl.com

inmarsat.com

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