



# Solar 25 Simulcast over IP Solutions

## Features

- ▶ Simplified setup and synchronization
  - ▶ Remote management
  - ▶ Low lifecycle costs



# Solar 25

Simoco Solar 25 is the latest 'Dalman Inside' simulcast product to be developed by our specialist simulcast engineers at Dalman Labs. Leveraging over 25 years of dedicated simulcast engineering, research and development, Solar 25 now extends the benefits of Dalman's revolutionary simulcast over IP to the P25 environment.

Building on the plug and play principles of analog simulcast solutions, Solar 25 offers enhanced resilience and full remote management of base station repeater network interfaces in a cost effective, compact, component based P25 system.

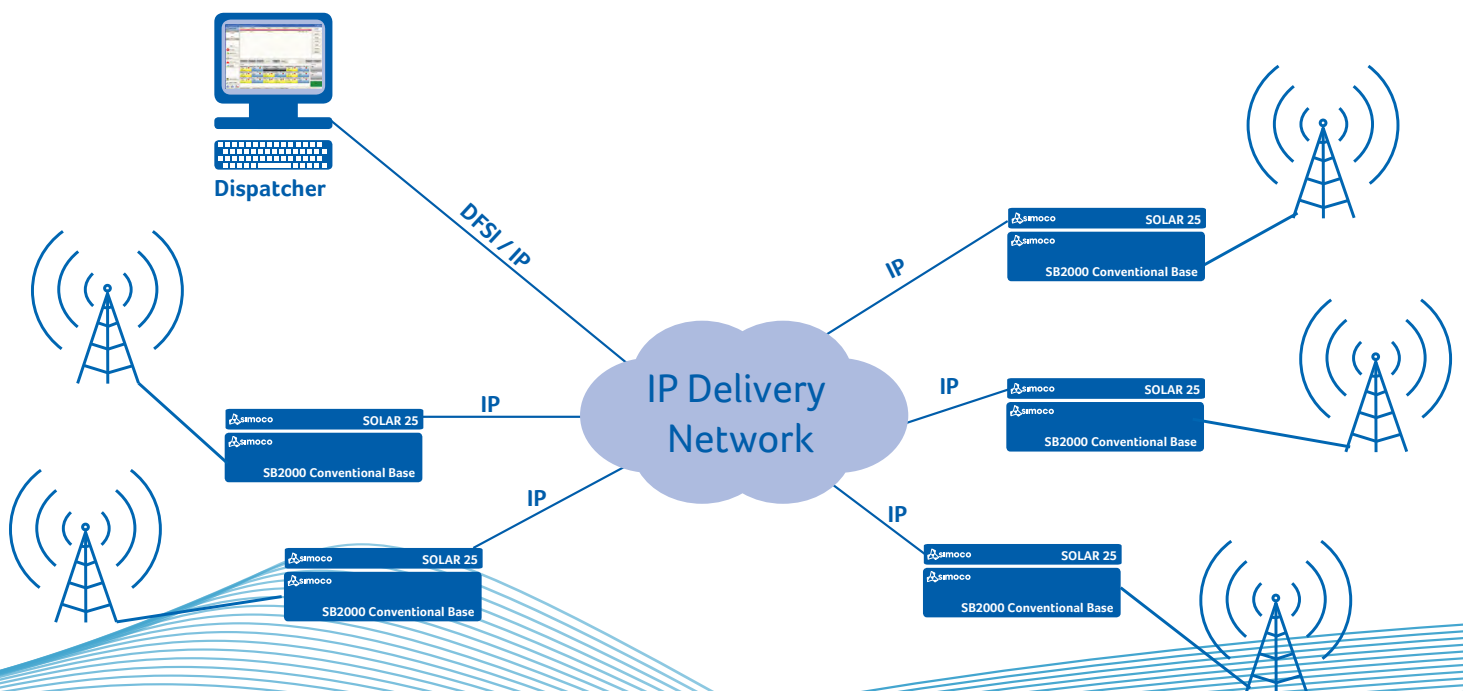
## Solar 25 Economics

Simulcast technology synchronizes duplicated channels in a wide area network to avoid interference between adjacent radio sites. Solar 25 Digital VoIP signals are better defined and more consistent than their analog counterparts, enabling the synchronization task to be 'processor controlled'.

This advantage revolutionizes the economics of simulcast deployment and support; enabling automatic set up and remote management to replace specialist knowledge, costly test equipment and reduced on-site maintenance.

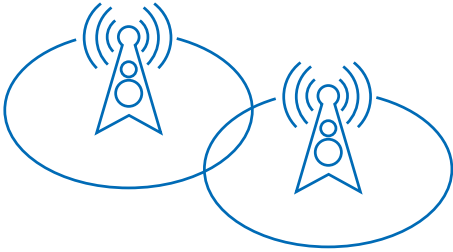
Simoco Solar technologies extend the benefits of simulcast by removing traditional barriers of cost and technology complexity for customers.

## Network Diagram



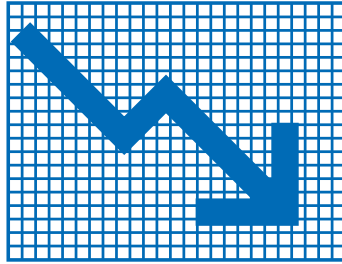
# SOLAR 25 Architecture

## Simplifying Simulcast Solutions



Simoco simulcast over IP solutions leverage the inherent consistency of digital signals to simplify simulcast synchronization. This means that Simoco Solar 25 is fundamentally easier to manage and support and can be deployed over the enterprise IP network.

## Lowest Lifecycle Costs



Processor-controlled synchronization, Auto Set-Up and Remote Management enable easier deployment and simplified network control. Additionally, its compact component based design offers low lifecycle costs.

## Dalman Inside



Simoco simulcast over IP solutions leverage over 25 years of dedicated simulcast engineering, research and development in Simoco Wireless Solutions Labs and are innovatively engineered to realize the advantages of digital technology in tangible business and cost benefits.

## Auto Set-up & Remote Management

Solar 25 Auto Set-up feature, together with traffic manager supervisory and remote management capability, eliminates the complexity of traditional simulcast technology and means that there is no need for specialized alignment and synchronization skills, costly test equipment and on-site maintenance.

## Component Based Design

Solar 25 is a component based system incorporating traffic management and network interface modules. Each 1U Solar 25 unit accommodates a GPS receiver to provide the timing source

throughout the network, and up to one traffic manager module and two network interface modules, making the system extremely compact, flexible and cost effective.

Solar 25 units can then be located throughout the network and configured to the specific requirements of each customer solution.

## Network Interface Module

Network Interfaces are DFSI compliant and provide full duplex connectivity to Simoco SB2000 base station repeaters and to DFSI compliant dispatch consoles and applications such as AVLS systems and voice recorders.

## Traffic Manager Module

Traffic Manager Modules provide the synchronization and supervisory functions throughout the network and can be duplicated to provide distributed resilience of these essential features.

## Integrated Voting

Radio site voting is evaluated at the traffic manager. The use of IP links between the radio sites and the traffic manager gives consistent and characterized delivery of site signal quality information ensuring an accurate vote every time.

# Specification

## Specifications

<b>Audio I/O</b>	DB9 Socket:	4 wire full duplex, -30 dBm to 0 dBm, 300 Hz to 3.2 kHz, +/-0.5 dB flatness across band
<b>IP Interface:</b>	10 Base/T RJ45 - UDP/IP	
<b>Environment</b>	8 Binary I/O	
<b>GPS 1 PPS</b>	1 PPS Delivered to Solar via RS-422 or TTL	
<b>Temperature</b>	Operating: -10 °C to 60 °C, Storage: -25 °C to 85 °C	
<b>Power Supply</b>	100-240 VAC 50-60 Hz, 10-36 VDC, 32-72 VDC	
<b>Physical Dimensions</b>	19" rack, 30.5 cm deep	
<b>Weight:</b>	TM - 3.5 Kg, NI - 3.3 Kg	
<b>CE Mark</b>	EN55022/24 & 61000-3-2/3	
<b>FCC approval</b>	15B	

## Traffic Manager Capacity

A single Solar 2 Traffic Manager(TM) can accommodate a maximum number of 32 base station repeaters with a maximum of 16 console interface connections by default. With the additional channel option, the user can select stations to form independent channel groups (to a maximum of 16) and allocated the number of console connections to each channel as appropriate.

## Voting

Receiver selection or receiver voting is conducted in the digital domain by the TM using signal information passed down from the station interface. Due to the noise free nature of the digital link, no further signal evaluation is necessary at the TM which means that the IP data packets contain both the received audio and the signal level/ quality information together so voter risetime is the absolute minimum. Solar 25 can accommodate either a ramping voltage or a set of tones as a source of RSSI signal.

## Synchronization

Synchronization operates within 2 micro seconds compared with other base station repeaters for both talk in and talk out directions. Switching the "vote" mid-transaction will only cause a disturbance of the input within the specified figure. Monitoring and control system configuration and status is available via a PC running the engineering terminal software supplied, and is connected either via USB or over the IP network to the TM. Standards based management is also available via the SNMP monitoring and control option to the TM allowing connection and sending of traps to a higher level management system. A closed contact summary alarm output is also provided on the central NI for connection to external alarm systems.

Specifications based on standard operating conditions. Not all combinations of frequency bands and options are permissible for every market area. See Simoco Wireless Solutions Product Catalogue for a full list of specifications. All specifications are subject to change without prior notice. Simoco Wireless Solutions does not accept liability for any error or omission in this document.

Field House  
Uttoxeter Old Road  
Derby  
DE1 1NH  
Tel UK: 08717 411 050  
Tel International: +44 (0) 1332 375 500  
customer.service@simocowirelessolutions.com

UKHQ

1270 Ferntree Gully Rd  
Scoresby, VIC 3179  
Tel: +61 (0) 3 9730 3999  
Fax: +61 (0) 3 9730 3964  
vic@simocowirelessolutions.com

AUSHQ

AMERICAS 1835 E. Hallandale Beach Blvd.  
Hallandale Beach  
FL 33009, USA  
americas@simocowirelessolutions.com

**simoco**  
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