

## SynchroCast3™

### Multiple Transmitter Simulcast System

Intraplex SynchroCast3™ provides a dynamic, scalable simulcasting solution for single-frequency networks of overlapping transmitters. The SynchroCast3 modules work with the proven Intraplex T1/E1/IP multiplexers and the precision of GPS digital timing. This enables a network of transmitters to work together to increase coverage areas and reduce interference.

#### System Compatibility

The SynchroCast3 system can be installed in Intraplex STL HD, AudioLink PLUS™, NetXpress LX, NetXpress™ systems and works with many Intraplex channel modules.

#### Product Features

- Optimizes the use of available frequencies
- Allows limited number of radio broadcast frequencies to cover a wider geographical area, often with existing infrastructure
- 3rd generation product improves on industry leading performance
- Increased time sampling
- New alert/alarm reporting
- Simplified installation and management
- Can be integrated into existing SynchroCast installations
- Dynamic delay control
- Dramatic improvement to coverage areas
- Makes new GPS-based timing technology available to older transmitter networks
- Precise control of channel frequencies
- Uses T1, E1 or IP transmission networks or microwave links

#### Product Details

##### Optimizes the Use of Available Frequencies

SynchroCast3 allows the use of a limited number of radio broadcast frequencies to cover a wider geographical area, often with the existing infrastructure. Turning a traditional radio transmitter network into a simulcast network can improve penetration in areas with marginal coverage. Medium and smaller transmitter systems can now realize the advantages of proven Intraplex SynchroCast® technology without the need to install a completely new transmission system.

##### Third-Generation Product Improves on Industry-Leading Performance

SynchroCast3 improves on earlier generations of the SynchroCast product with increased time sampling, new alert/alarm reporting features, simplified installation and management, and the ability to be integrated into existing SynchroCast installations. More efficient use of network bandwidth reduces timing overhead and allows additional bandwidth to be allocated to audio and data transmission. Dynamic and hitless delay adjustments, reliable operation, and flexible implementations continue with this newest-generation product to provide the highest level of service possible.

##### Dramatically Improves Coverage Areas

Now, broadcasters can install a simulcast radio system on a single channel without having to install a completely new transmission system. The SynchroCast3 system makes new GPS-based timing technology available to older transmitter networks. It gives users easy control of the system functions critical to adjusting the coverage area to achieve desired performance.

SynchroCast3 also provides reference signals to the transmitter station for precise control of channel frequencies. The system uses either T1, E1 or IP transmission lines, now readily available from Telco carriers or via private networks. These can be traditional land based, microwave, or fiber optic links. In fact, these systems can include a combination of public and private network links and still precisely control the necessary parameters to achieve peak simulcast performance.

### **The Only Simulcast System with Dynamic Delay Control**

The SynchroCast3 system will automatically adjust for any link delays that occur. Link delay changes can result from network rerouting, signal path fade and other network conditions. The delay received at the transmitter is continuously sampled. If a change in delay persists, SynchroCast3 will initiate a delay correction at the transmitters. Once the delay correction is started, the shift in delay time is done seamlessly, without interruption to system operation and at a controlled rate to prevent overshooting the desired delay.

### **Why use SynchroCast3?**

#### *Make better use of available frequencies*

As there are a limited set of frequencies available for radio broadcast, optimal coverage from the ones in place is essential. By simulcasting on the existing frequencies, the radio broadcaster can provide robust coverage to the existing target audience.

#### *Add fill-in transmitters for obstructed areas.*

A location that is obstructed or overlapped because of geography can now use simulcast to add the necessary coverage without having to apply for an additional frequency.

## **SynchroCast3 System Requirements**

### **Components**

SynchroCast3 can be ordered as add-on components or as a pre-configured package with the Intraplex T1/E1 multiplexers or the NetXpress IP multiplexer.

### **SynchroCast3 components are as follows:**

- IX-SNC-101S Studio timing module
- IX-SNC-101T Transmitter timing module
- IX-MA-480 Module adapter for GPS and timing interfaces required for the IX-SNC-101S and IX-SNC-101T
- IX-SNC-SCS-8 Cable set for SynchroCast3 timing modules at the studio or transmitter
- IX-SNC-SCS-9 Cable set for expansion multiplexers at the studio or transmitter

### **GPS Receiver**

One GPS receiver is required for each transmitter station site in the system and at the studio site.

### **Compatible Intraplex Modules**

The SynchroCast3 system works with many Intraplex channel modules.



## Specifications

*Specifications and designs are subject to change without notice*

<b>SynchroCast3 Timing</b>	
T1 Timing Reference	T1/E1 timing is referenced to GPS clock signal
RF Carrier Frequency	Exciter carrier frequency can be externally controlled by the 10 MHz GPS clock signal
Audio Alignment Accuracy	Alignment is maintained at $\pm 2 \mu\text{S}$ once delay is established
Delay Equalization Rate	Adjustment rate is 130 $\mu\text{S}$ per second, typical
T1/E1 Circuit Switch Response	Mean time to detect delay change and start delay equalization after a T1/E1 circuit switch is 2.5 seconds
Fine Adjustment Range	Delay is adjustable with a resolution of 1 $\mu\text{S}$ for fine tuning of overlap regions
GPS Receivers	Spectracom SecureSync GPS Master Oscillator TRAK Microwave Model 8821H GPS Master Oscillator Trimble Thunderbolt E GPS Disciplined Clock
Module Adapters	CM-5/7TD and CM-5/7R-TD common modules: MA-215 (RJ-45 network connection), MA-217A (BNC network connection), or MA-217B (DB-15 network connection) module adapter. SNC-101S and SNC-101T modules: MA-480 module adapter for signal input/outputs
<b>Physical and Environmental (with multiplexer chassis)</b>	
Power Consumption	SNC-101S or SNC-101T consumption is 500 mW MA-480 consumption is negligible
Dimensions (H X W x D)	3RU: 5.25 x 14.75 x 19 in (13.4 x 36.8 x 48.3 cm) EIA rack mountable
Weight	Less than 15 lbs
Regulatory	FCC Part 15, Class A FCC Part 68 registered Industry Canada CS-03 approved UL 1950

