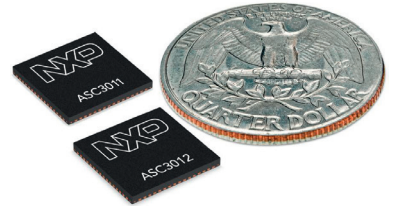




NXP AISG Transceivers ASC3011, ASC3012



AISG transceivers with tunable dynamic range and multiple carriers

The NXP ASC3011 and ASC3012 AISG transceiver products are highly integrated DSP based AISG modems with software programmable parameters that can be used on tower mounted devices or base-stations. These devices are optimized for a very low external component count. The receiver sensitivity and transmitter output power have a high dynamic range, preprogrammed to conform to the AISG standard or tunable to higher levels according to application requirements.

Key features

- ▶ Two independent AISG modems in small package
- ▶ Low component count and small application size
- ▶ Receiver band-pass filter and transmitter emission profile compliant with AISG standard
- ▶ Supports 2.176 MHz, 4.352 MHz and 6.528 MHz
- ▶ Advanced DSP-based modem
- ▶ Receiver sensitivity better than AISG standard to compensate for external circuit attenuation
- ▶ Three programmable receiver sensitivity levels: AISG standard, high and ultra high
- ▶ Programmable transmitter cable power of 0 dBm to +10 dBm
- ▶ Supports 9.6 kbps and 38.4 kbps AISG OOK data rates
- ▶ Integrated 50 Ω termination for receiver and transmitter signals
- ▶ 5 V tolerant IO
- ▶ 1.8 V and 3.3 V power supply
- ▶ 9 x 9 mm HVQFN-64 pin package

Key benefits

- ▶ Combines two AISG transceivers in single 9 x 9 mm package
- ▶ Highly integrated solution:
 - Cost effective
 - Low component count
 - Small size
 - Low power

Interfaces supported

- ▶ I²C master/slave:
 - Configurable I²C address selection for connecting four ASC3011/12 devices on the same I²C lines
- ▶ UART/RS-485

Description

The programmable ASC3011 (single modem) and ASC3012 (dual modem) AISG transceivers with programmable carrier frequency are highly optimized, cost efficient and flexible solutions for AISG communication between base stations and tower mounted devices.



The products can be used in base station controllers as well as in tower mounted devices. With two independently tunable AISG modems in a single package, the ASC3012 product is a very cost and size optimized solution.

By the two/three wire interface the products can communicate with the UART of a microcontroller or an RS-485 transceiver. The parameters of each modem can be independently programmed using the I²C interface. The products conform to the AISG standard.

In addition to the default AISG carrier frequency of 2.176 MHz, the products also support 4.352 MHz, and 6.528 MHz carrier frequencies to support channel multiplexing of two or three carriers on the same RF feeder cable.

The receiver is programmable to three different sensitivity levels depending on the application requirements. The receiver band-pass filter is AISG compliant and guarantees

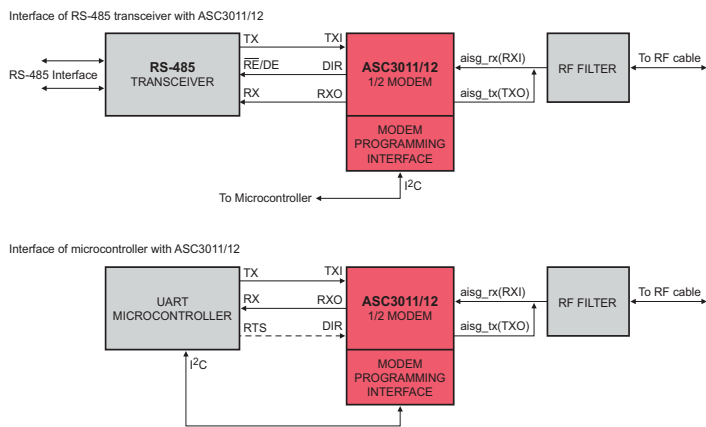
excellent performance at low signal strength even with presence of co-channels.

Development platform

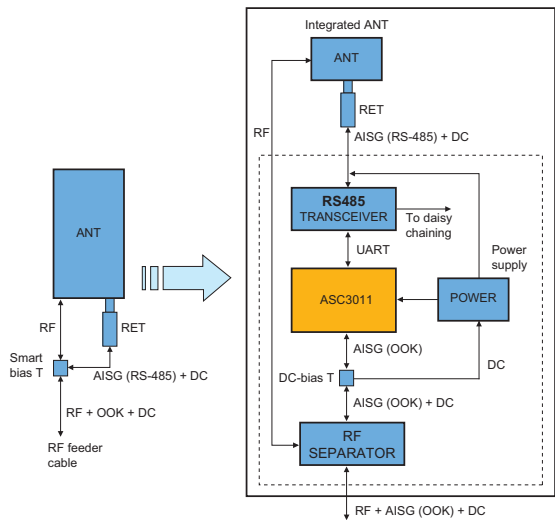
Some modem parameters of the ASC3011 and ASC3012 AISG transceivers are programmable, like receiver sensitivity and output power. NXP provides a Software Development Kit (SDK) with tools to set such modem parameters. NXP provides also AISG Layer-2 and Layer-7 reference software for an external microcontroller to interface with the RS-485/UART of the ASC3011/12 devices. The same reference software can be used also for the NXP AISG transceivers with embedded ARM[®] Cortex™-M3 CPU — ASC3101 single modem transceiver and ASC3112 dual modem transceiver.

Using the NXP AISG reference protocol stack will enable base station and tower mounted device manufacturers to build AISG compliant products with guaranteed interoperability between products of different device manufacturers using NXP's AISG transceiver products.

Application block diagram



Block diagram of typical RET system



Part numbers

Part number	Description
ASC3011	Single AISG modem (64 pin)
ASC3012	Dual AISG modem (64 pin)

