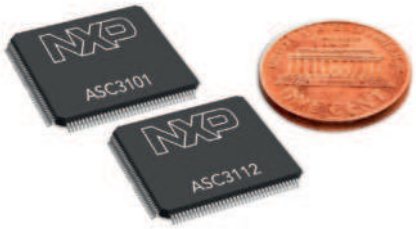


NXP AISG Transceivers ASC3101, ASC3112



AISG transceivers with integrated ARM® Cortex™-M3 processor

The NXP ASC3101 and ASC3112 AISG transceiver products are optimized AISG controller solutions for tower mounted devices requiring AISG communication and control. These products combine one or two programmable DSP based AISG modems and an ARM® Cortex™-M3 processor with embedded flash program memory and a broad range of peripheral interfaces to control the tower mounted devices.

Key features

- Low component count and small application size
- 94 MHz ARM® Cortex™-M3
- Single or dual AISG modem
- Receiver band-pass filter and transmitter emission profile compliant with AISG standard
- Supports 2.176 MHz, 4.352 MHz and 6.528 MHz carrier frequencies
- Embedded flash program memory for ARM CPU
- Broad range of peripheral interfaces for TMA and RET systems
- Receiver sensitivity better than AISG standard to compensate for external circuit attenuation
- Three programmable receiver sensitivity levels; 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
- 5 V tolerant IO
- 1.8 V and 3.3 V power supply
- 20 x 20 mm HLQFP-144 pin package

Key benefits

- Combines two AISG transceivers and an ARM CPU with flash memory in single package
- Highly integrated solution:
  - Cost effective
  - Low component count
  - Small size
  - Low power

Interfaces supported

- I^2C master/slave
- SPI master/slave for three slave devices
- Timer with four capture inputs and four match outputs
- PWM for motor control
- 8-channel 10-bit ADC
- 8-channel 10-bit DAC
- 44 GPIOs
- Standard UART-550 and RS-485 support
- Real time clock

Description

The combination of AISG transceiver functionality with a powerful 94 MHz ARM® Cortex™-M3 processor is a highly optimized and cost-effective solution for tower mounted devices requiring multiple AISG transceivers and a CPU. The products include programmable DSP based AISG transceivers, SRAM/ROM and flash memory for the ARM CPU and a broad range of peripheral interfaces. The products conform to the AISG standard and are optimized for controlling tower mounted devices such as tower mounted amplifiers and remote electrical tilt antennas.

The innovative DSP-based programmable AISG transceiver can be either factory programmed, field-updated, or settings can be changed on-the-fly by the embedded CPU.

In addition to the standard 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.

NXP provides a full software reference stack with device drivers and AISG protocol software stack.

Up to 256 kB of Integrated flash and 16 kB of SRAM are available to run the application software. SPI-based serial flash can be added to externally extend the program memory.

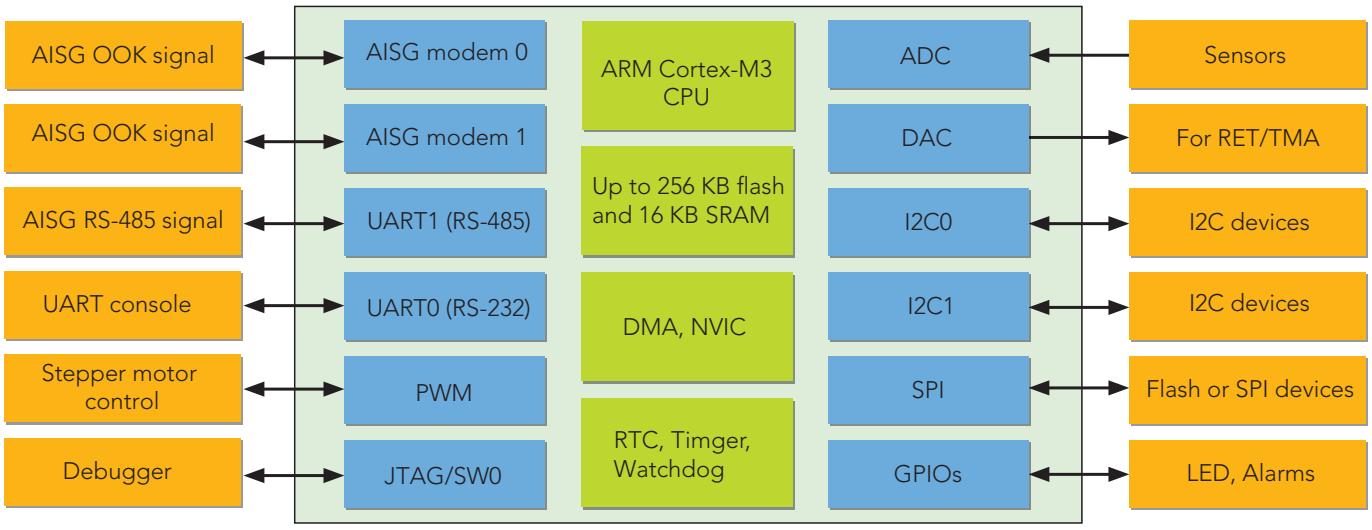
The products include integrated ADC, DAC, Real Time Clock with 32 kHz crystal and 44 customizable GPIOs to meet any specific application requirements.

The receiver can be programmed 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

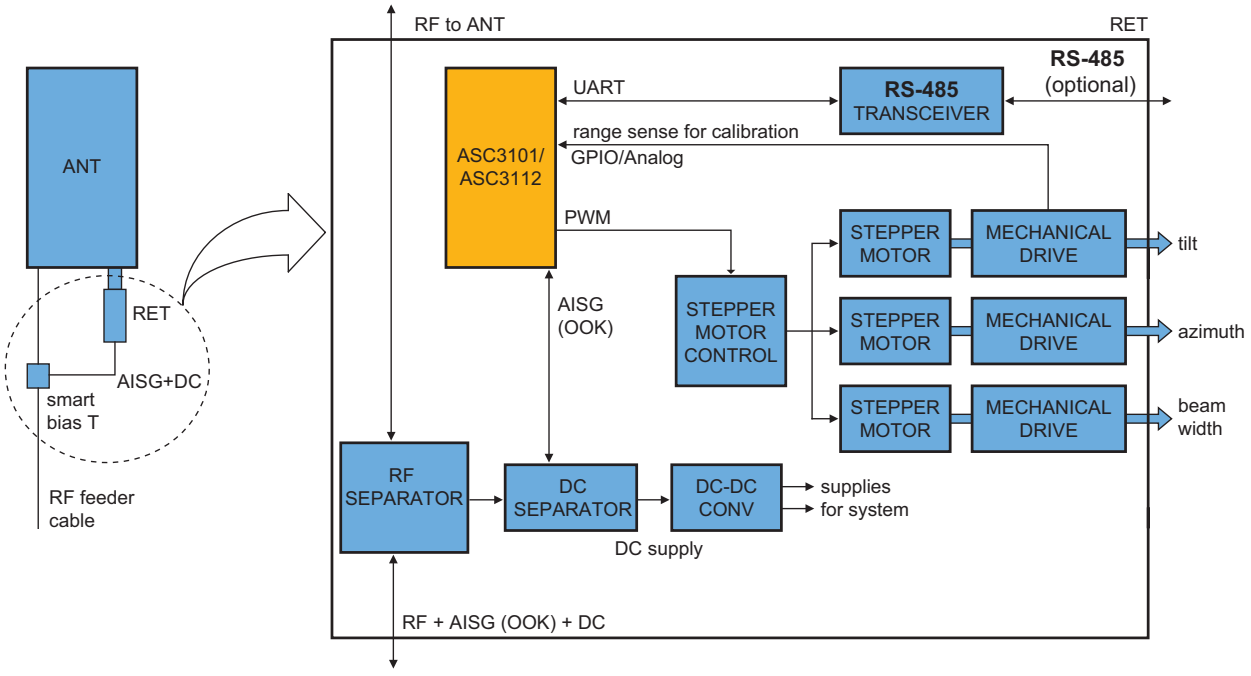
ASC3101 and ASC3112 are shipped with a full Software Development Kit (SDK), which includes a reference AISG stack for basic control and power management. The SDK allows tower mounted device manufacturers to maximize interoperability in compliance with the AISG standard and to minimize the total component-count.

Block diagram of ASC3101, ASC3112

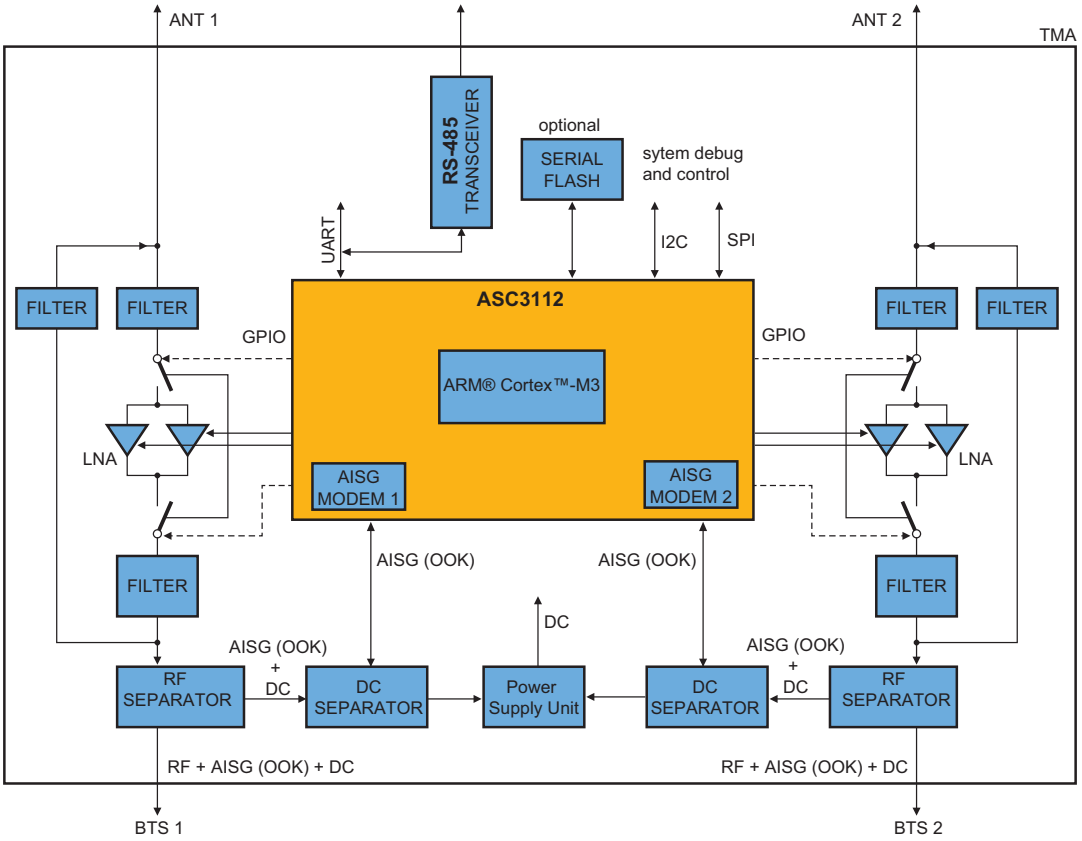


AISG modem 1 is only for ASC3112

Block diagram of typical RET system



Block diagram of an optimized TMA system



TMA implementation with reduction of external switch or multiplexer for RF port selection for OOK data. This can also help to simplify the installation procedure.

Part numbers

Part number	Description
ASC3101	Single modem AISG Transceiver with embedded ARM® Cortex™-M3 processor and 128 kbyte of embedded flash program memory
ASC3112	Dual modem AISG Transceiver with embedded ARM® Cortex™-M3 processor and 256 kbyte of embedded flash program memory



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