

Mini-ADACSync

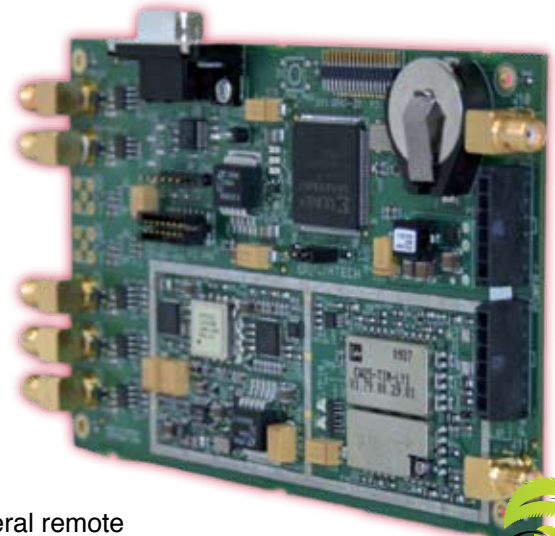
GPS-disciplined, precision reference clocks generator

The Mini-ADACSync is a small form factor, GPS-disciplined, precision, low-jitter reference clocks generator featuring:

- Four output reference clocks (**Ref CLK Out**, **CLK0**, **CLK1**, **CLK2** (derived from the reference clock))
- The possibility of an external or onboard reference clock (**Ref CLK**)
- A high-precision GPS reference clock mode for GPS-disciplined reference clock applications

The Mini-ADACSync is designed specifically for Lyrtech's small form factor (SFF) software-defined radio (SDR) development platforms. It is capable of synchronizing the RF, data conversion, and baseband processing sections of [SFF SDR development platforms](#) with a common GPS-disciplined, low-jitter clock reference.

The Mini-ADACSync is equipped with an onboard GPS module, providing a universal and global time reference clock. An optional control loop logic core allows an onboard 10 MHz VCxO to precisely and continuously match the GPS reference, ensuring a very-low-jitter clock distribution and long-term frequency stability. It also makes possible



synchronizing several remote SFF SDR development platforms.

AT A GLANCE

- Three, preconfigured clock outputs (**CLK0**, **CLK1**, **CLK2**)
- Less than 0.1 ppm, onboard VCxO, GPS-matched precision reference
- Reference clocks—External, onboard, or onboard GPS disciplined
- Drives 50 Ω , single-ended loads
- Selected reference clock (10 MHz) and 1-pps GPS buffered outputs
- GPS time/position stamp at the GPIO-32 output
- Stand-alone configuration through the onboard EEPROM (the EEPROM is preconfigured)
- Plug and Play with Lyrtech SFF SDR development platforms

The reference clock (**Ref CLK**), which could be an external clock or the onboard 10 MHz GPS-disciplined reference, is available from the buffered reference output **Ref CLK Out**. The Mini-ADACSync also supports three, buffered clock outputs (**CLK0**, **CLK1**, and **CLK2**), generated from the reference clock through an AD9511 PLL. The **CLK0–CLK2** outputs are preconfigured to supply outputs of 36 MHz each, which are perfect matches to the SFF SDR development platforms' [add-on RF modules](#). (It is possible to customize outputs **CLK0–CLK2** for frequencies between 31.25 MHz and 350.00 MHz. Contact info@lyrtech.com for details.)

GPS time/position information is available through the Mini-ADACSync's GPIO-32 interface for DAQ time/position-stamping or navigation applications, for example. This interface perfectly matches the Lyrtech [ADACMaster III module](#), which serves as the SFF SDR development platform's data conversion module.



Applications

The following are only a few of the applications where the Mini-ADACSync shines:

- Synchronization of system clocks
- Integration to clock distribution systems and data acquisition systems
- Synchronization of remote systems through a common GPS reference clock

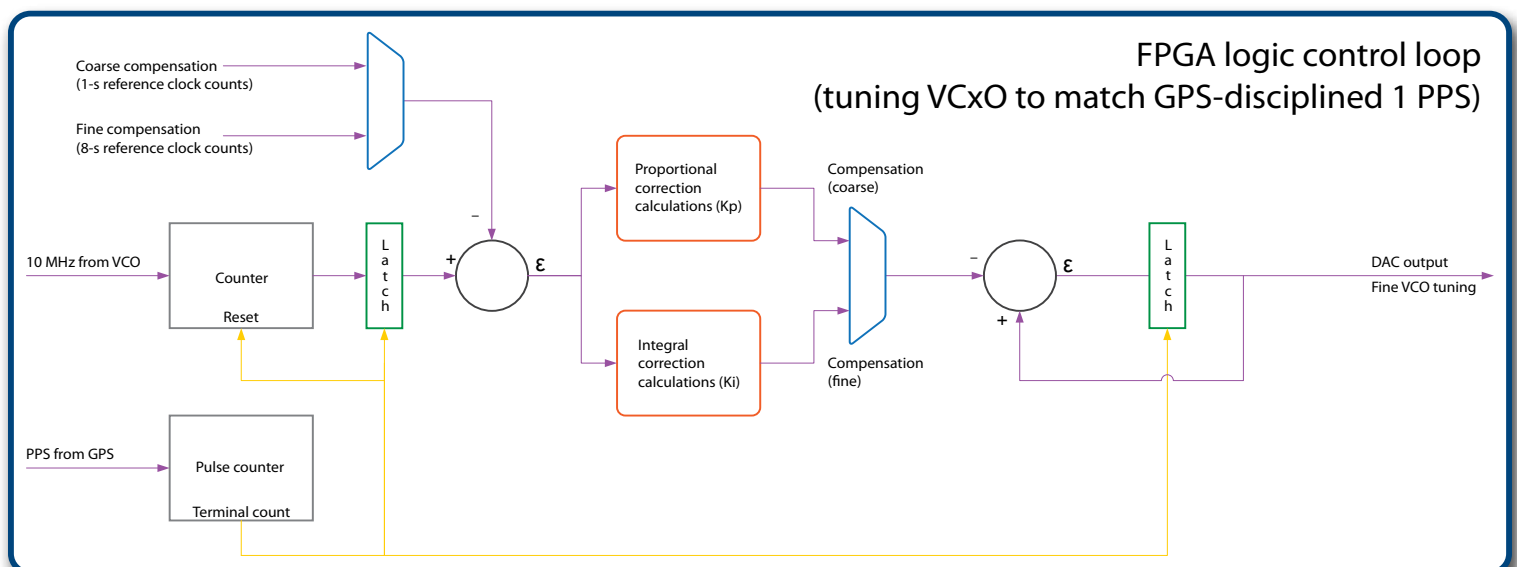
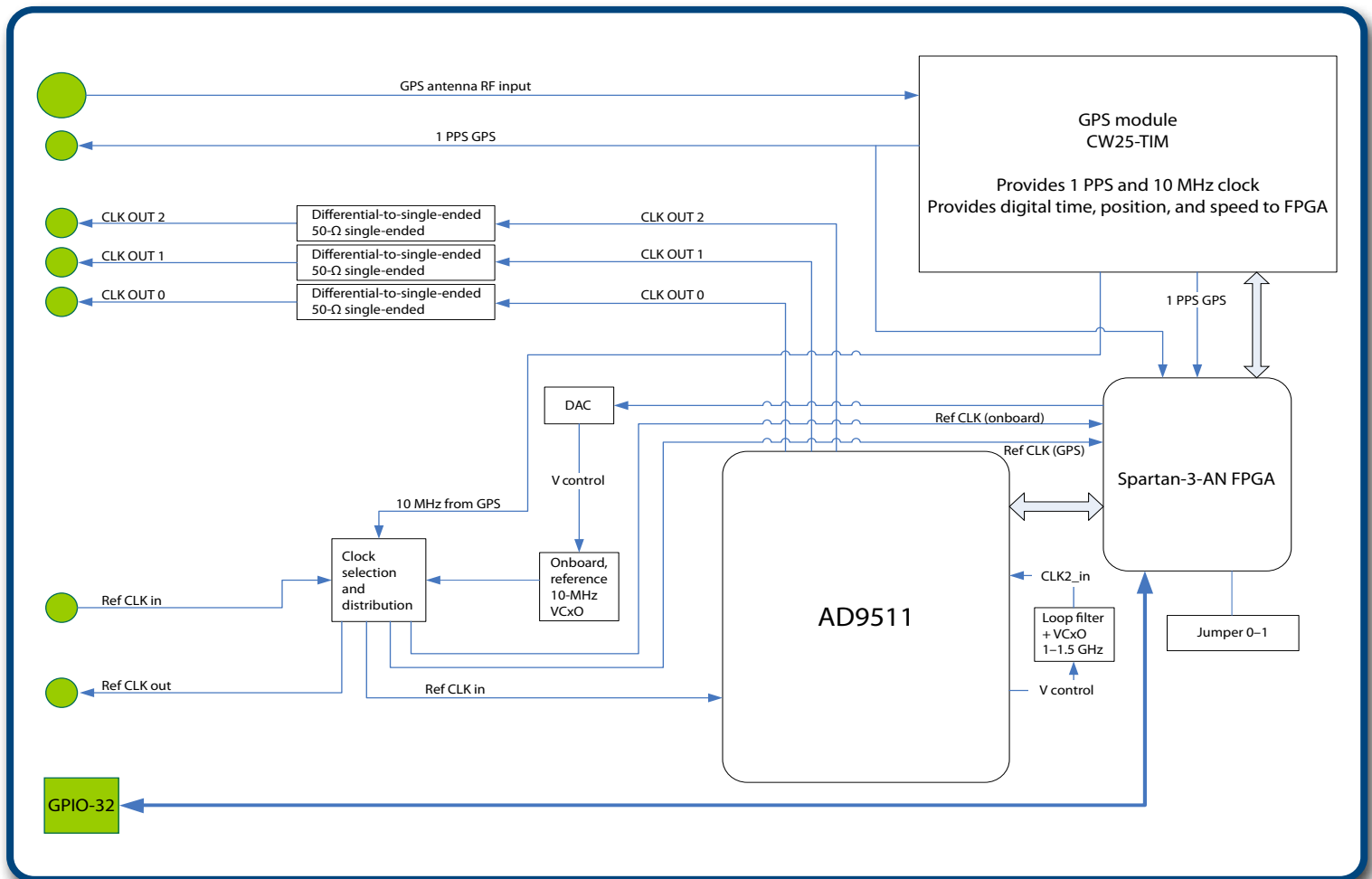
Specifications

Output clocks	Buffered output clocks	3
	Independent clocks	3
	Output impedance	50 Ω
	Output type	Single-ended LVCMOS
	Connectors	SMA
	Clock generation	• CLK0=36 MHz • CLK1=36 MHz • CLK2=36 MHz It is possible to customize outputs CLK0–CLK2 for other frequencies between 31.25 MHz and 350.00 MHz. Contact info@lyrtech.com for details.
Input/Output reference clock	Input reference clock options	• Onboard VCxO • Onboard VCxO GPS disciplined • External
	Onboard VCxO frequency	10 MHz
	Onboard VCxO precision	• Less than 0.1 ppm matched to GPS reference • 2.5 ppm free running
	Onboard VCxO phase noise	• 10 Hz: –83 dBc/Hz • 100 Hz: –115 dBc/Hz • 1 kHz: –135 dBc/Hz • 10 kHz: –140 dBc/Hz
	Output reference clock	Same as selected reference clock
	Input/Output reference clock impedance	50 Ω
	Input/Output reference clock type	Single-ended LVCMOS (10 dBm)
	Input/Output reference clock connectors	SMA
	Input reference clock	10 MHz Depending on whether outputs CLK0–CLK2 are customized, this value can range from 1 MHz to 250 MHz. For customization, contact info@lyrtech.com .
GPS	Antenna localization	• Near a window (installation dependant) • Outdoors
	Required antenna specifications	3.3 V active antenna
	Antenna input connector	SMA
	Antenna input impedance	50 Ω
	PPS output connector	SMA
	PPS output impedance	50 Ω
	GPS readout information (GPIO-32)	• UTC time • UTC day • Latitude • Longitude • Altitude • Speed over ground • Course over ground
GPIO-32 interface	Interface	• 3.3 V • LVCMOS
	Connector	• 2×17 header • Pitch 0.05 in.

Optional accessories

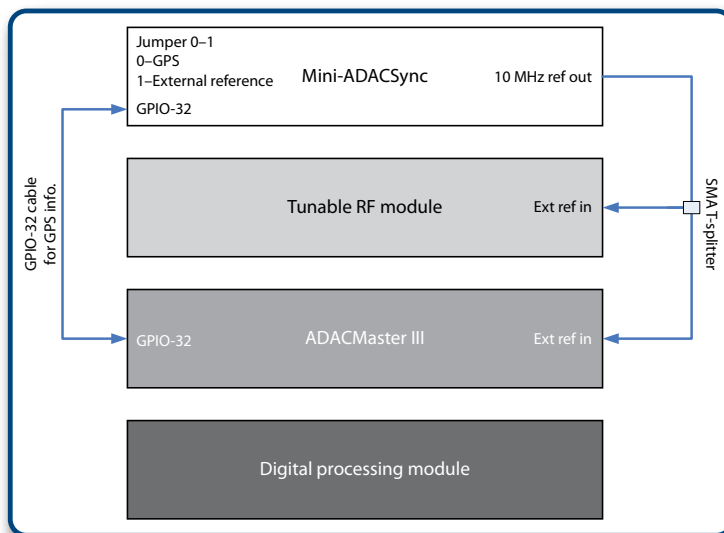
The Mini-ADACSync can be purchased with or without a GPS antenna (and associated cabling). Discuss it with one of our specialists.

Block diagrams



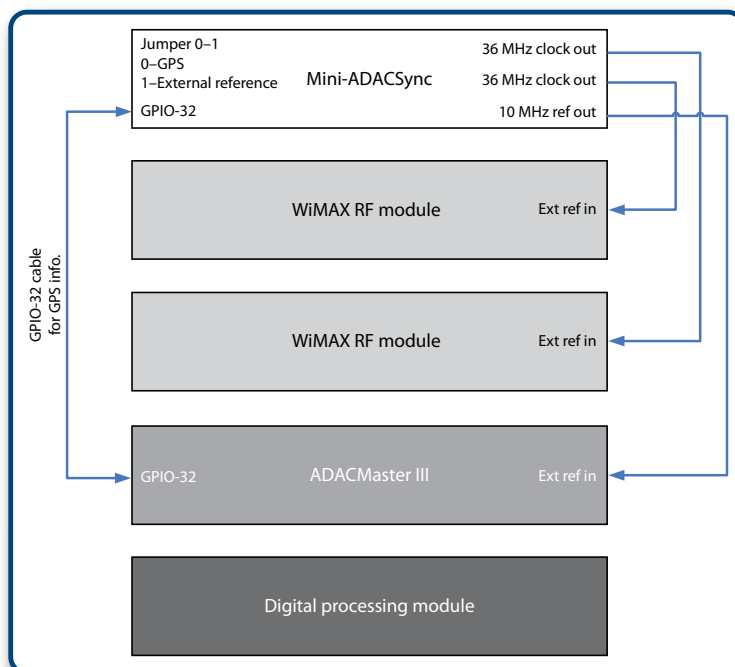
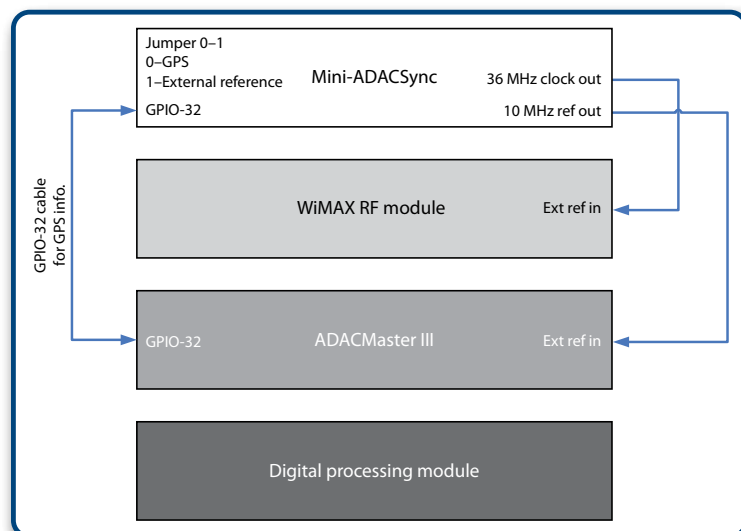
Typical Lyrtech system configuration examples

Tunable low/high-band SFF SDR development platform



WiMAX SFF SDR development platform

SISO configuration on the left, MIMO/dual-channel configuration on the right.



FOR MORE INFORMATION

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