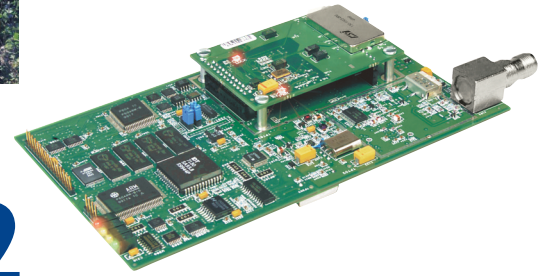




Shown with optional CSI Wireless SBX Beacon receiver installed.



# SLX-2

- GPS, WAAS, L-band, RTK, and more
- Sub-meter 95% horizontal accuracy and up to 5 Hz position update rates provide the performance you need.
- New built-in real-time kinematic positioning engine provides better accuracy than standard C/A code processing
- New COAST™ technology allows the SLX-2 to operate with old correction data
- New raw measurement data provides information needed for post-processing
- Optional on-board socket for installation of a CSI Wireless SBX beacon receiver
- On-board regulated power supply eliminates the need for an external power supply

## Introducing the SLX-2

The SLX-2 is the most sophisticated, cost-effective OEM DGPS receiver system in the world today. Only the SLX-2 delivers such a complete offering at a competitive price.

## Fully Featured

The SLX-2 includes GPS, WAAS, L-band, real-time kinematic, post-processing, high accuracy, high position update rates, and

easy configuration using NMEA 0183 commands and queries.

The SLX-2 also has an on-board socket and mounting holes for an optional CSI Wireless SBX beacon receiver.

## A variety of DGPS sources

Regardless of where you are in the world or your situation, the SLX-2 will deliver accurate positioning using one of a variety of built-in correction sources.

The SLX-2 offers WAAS, L-band, and RTK DGPS operation. It also accepts any external RTCM SC-104 correction data. The SLX-2 is easily augmented with DGPS Beacon reception by dropping in a CSI Wireless SBX beacon engine.

## WAAS

The US Federal Aviation Administration's Wide Area Augmentation System (WAAS) is now undergoing rigorous final testing for its Initial Operational Capability. Other WAAS-compatible space-based augmentation systems are also under development, such as the European Geostationary Navigation Overlay System (EGNOS) and the Japanese MTSAT Satellite-based Augmentation System (MSAS), among others. The SLX-2 provides compatibility for each of these *free* correction services.

## OmniSTAR®

The SLX-2 is capable of using the OmniSTAR® Worldwide DGPS Service that provides users with high quality correction data. Using correction data from a network of reference stations, OmniSTAR's Virtual Base Station algorithms ensure that positioning

accuracy does not degrade as a function of distance from a base station. OmniSTAR is a subscriber-based service and offers competitive service rates.

## DGPS Beacon

Many authorities around the world have installed networks of DGPS radiobeacons that broadcast *free* GPS correction information. When in range of a DGPS beacon, the optional on-board SBX will provide accurate, reliable correction data.

## Real Time Kinematic

CSI Wireless is proud to introduce a new RTK engine for the SLX-2. This robust L1 RTK solution provides a more accurate position than receivers processing only C/A code position solutions. After a short initialization, this DGPS mode will provide you with better than 20-cm horizontal accuracy (95% confidence) in real-time.

## COAST™ Technology

Our new COAST™ technology allows the SLX-2 to use old correction data without seriously affecting the quality of your positioning. Using COAST™, the SLX-2 is less likely to be affected by differential outages due to differential signal blockages, weak signal, or interference. No other product offers this flexibility.

## What is the warranty?

CSI Wireless is committed to its customers and products, and offers a limited one-year warranty on parts and labor.

Contact us to discover how the SLX-2 is the solution to your positioning requirement.

## GPS Sensor Specifications

<b>Receiver Type:</b>	L1, C/A code, with carrier phase smoothing
<b>Channels:</b>	12-channel, parallel tracking (10-channel when tracking WAAS)
<b>WAAS Tracking:</b>	2-channel, parallel tracking
<b>Update Rate:</b>	1 Hz default, 5 Hz max
<b>Horizontal Accuracy:</b>	1 m 95% confidence (DGPS*) 5 m 95% confidence (autonomous, no SA)
<b>Cold Start:</b>	1 min typical
<b>Antenna Input Impedance:</b>	50 $\Omega$

## L-band Sensor Specifications

<b>Frequency Range:</b>	1525 to 1559 MHz
<b>Sensitivity:</b>	-120 dBm for $<10^{-3}$ BER
<b>Tuning Mode:</b>	Manual or automatic
<b>Adjacent Channel Rejection:</b>	50 kHz spacing $>25$ dB, 1 MHz spacing $>60$ dB

## SBX Beacon Sensor Specifications

<b>Channels:</b>	2-channel, parallel tracking
<b>Frequency Range:</b>	283.5 to 325 kHz
<b>Channel Spacing:</b>	500 Hz
<b>MSK Bit Rates:</b>	50, 100, and 200 bps
<b>Operating Modes:</b>	Manual, automatic, semi-automatic
<b>Cold Start Time:</b>	$< 1$ minute typical
<b>Reacquisition Time:</b>	$< 2$ seconds typical
<b>Demodulation:</b>	Minimum shift keying (MSK)
<b>Sensitivity:</b>	1.5 m V/m for 6 dB SNR @ 200 bps
<b>Dynamic Range:</b>	100 dB
<b>Frequency Offset:</b>	$\pm 10$ Hz ( $\sim 30$ ppm)
<b>Adjacent Channel Rejection:</b>	65 dB $\pm 1$ dB @ $f_o \pm 400$ Hz

## Communications

<b>Serial ports:</b>	2 full duplex w/o CAN bus, 1 full duplex w/ CAN bus
<b>Interface Level:</b>	RS-232C
<b>Baud Rates:</b>	4800, 9600, 19200
<b>CAN Bus:</b>	CAN 2.0B
<b>Correction Input / Output Protocol:</b>	RTCM SC-104
<b>Data Input / Output Protocol:</b>	NMEA 0183
<b>Raw Measurement Data:</b>	Proprietary binary (RINEX utility available)
<b>Timing Output:</b>	1 PPS (HCMOS, active high, rising edge sync, 10 kW, 10 pF load)
<b>Event Marker Input:</b>	HCMOS, active low, falling edge sync, 10 kW, 10 pF load

## Environmental

<b>Operating Temperature:</b>	-32°C to +74°C
<b>Storage Temperature:</b>	-40°C to +85°C
<b>Humidity:</b>	95% non-condensing

CSI Wireless Dealer



Avery label #05260 (laser print)

Printed in Canada.

## Power

<b>Input Voltage Range:</b>	9.5 to 48 VDC
<b>Reverse Polarity Protection:</b>	Yes
<b>Power Consumption:</b>	$< 5.5$ W (w/ CDA-2, w/o SBX)
<b>Power Consumption:</b>	$< 6.5$ W (w/ CDA-2, w/ SBX)
<b>Current Consumption:</b>	$< 450$ mA @ 12 VDC (w/ CDA-2, w/o SBX)
<b>Current Consumption:</b>	$< 550$ mA @ 12 VDC (w/ CDA-2, w/ SBX)
<b>Load Dump Protection:</b>	Up to 86 VDC
<b>Antenna Voltage Output:</b>	5 VDC
<b>Antenna Short Circuit Protection:</b>	Yes

## Mechanical

<b>Dimensions (w/ break-off edge):</b>	184 mm L x 107 mm W x 27 mm H (7.24" L x 4.23" W x 1.07" H)
<b>Dimensions (w/ break-off edge):</b>	184 mm L x 100 mm W x 27 mm H (7.24" L x 3.94" W x 1.07" H)
<b>Weight (w/o SBX):</b>	0.15 kg (0.33 lb)
<b>Weight (w/ SBX):</b>	0.18 kg (0.39 lb)
<b>Power / Data Connector:</b>	20-pin right angle header
<b>Antenna Connector:</b>	TNC-socket
<b>Beacon Receiver:</b>	Header connectors and mounting holes present for CSI Wireless SBX

## Pin-out

<b>Pin 1</b>	Power supply input	<b>Pin 2</b>	Power supply input
<b>Pin 3</b>	1 PPS output	<b>Pin 4</b>	Do not connect
<b>Pin 5</b>	TXD port A	<b>Pin 6</b>	N/C
<b>Pin 7</b>	RXD port A	<b>Pin 8</b>	N/C
<b>Pin 9</b>	TXD port B	<b>Pin 10</b>	N/C
<b>Pin 11</b>	RXD port B	<b>Pin 12</b>	CAN program input
<b>Pin 13</b>	Event marker input	<b>Pin 14</b>	N/C
<b>Pin 15</b>	CANL	<b>Pin 16</b>	VCAN+
<b>Pin 17</b>	CANH	<b>Pin 18</b>	VCAN-
<b>Pin 19</b>	Ground	<b>Pin 20</b>	Ground

## CDA-2 Antenna

<b>GPS Freq. Range:</b>	L1 (1575 MHz $\pm 10$ MHz)
<b>GPS LNA Gain:</b>	28 dB
<b>L-band Freq. Range:</b>	1525 to 1560 MHz
<b>L-band LNA Gain:</b>	28 dB
<b>Beacon Freq. Range:</b>	283.5 to 325 kHz
<b>Beacon LNA Gain:</b>	34 dB
<b>Dimensions:</b>	129 mm dia x 98 mm H (5.08" dia 3.85" H)
<b>Weight:</b>	0.456 kg (1.0 lb)
<b>Antenna Connector:</b>	TNC-socket
<b>Enclosure:</b>	Powder-coated aluminum base, polycarbonate dome
<b>Mounting Thread:</b>	1-14-UNS-2B
<b>Input Voltage:</b>	4.85 to 15.0 VDC
<b>Input Current:</b>	50 to 60 mA
<b>Operating Temp.:</b>	-40°C to +85°C
<b>Storage Temp.:</b>	-40°C to +85°C
<b>Relative Humidity:</b>	100% condensing

\* SVs  $> 5$ , HDOP  $< 2$ , RTCM SC-104 correction data from a dual frequency reference station, short baseline, and low multipath environment.

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