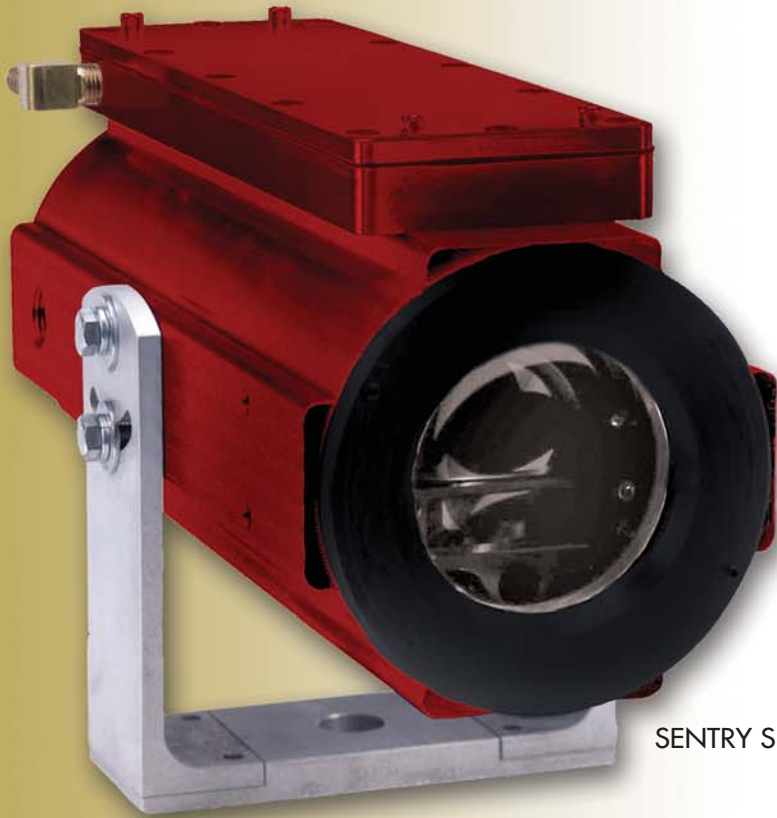


Sentry & Watchman

OBJECT POSITIONERS

Optech



SENTRY SR*



WATCHMAN 3100*

*Sentry SR & Watchman 3100 are shown fully equipped

Visit our website for more applications: www.optech.on.ca

The Laser Advantage

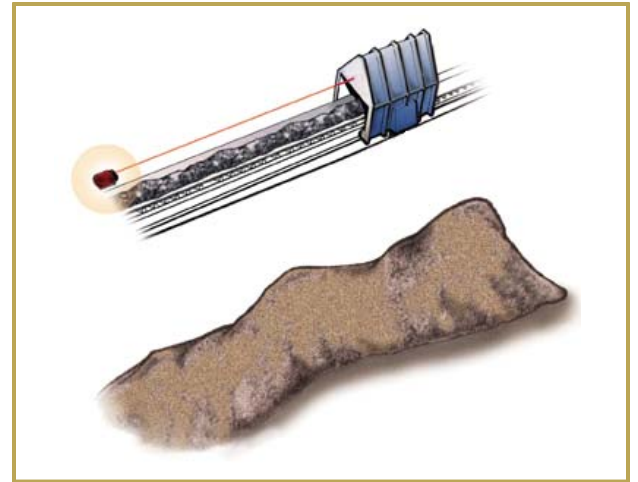
Safe. Fast. Accurate. Versatile. Easy to install. Rugged. Cost-effective.
Any one of those features is key to an ideal object positioning solution.
Optech's laser-based object positioners are all of the above.

The ultimate solution for any object positioning application, Optech's laser-based object positioners exploit the unique properties of light to produce precise and reliable measurements in a variety of industrial applications.

The Sentry SR and Watchman 3000 family of object positioners are laser rangefinders that continuously monitor and accurately report the distance to moving industrial objects such as conveyers and tripper cars. Because our systems provide non-contact measurements, Optech's object positioners accurately measure moving objects from 0.4 meters, to 250 meters away — and up to 1,500 meters away with a reflector.

Optech object positioners are:

- Completely eyesafe
- Fast, offering up to 20 readings per second
- Accurate, with absolute accuracies within 2 cm
- Operable from any angle or orientation
- Factory-calibrated, ready to measure
- Low maintenance, with no moving parts
- Easy to install, requiring no plant downtime
- Housed in rugged, industrial-rated, explosion-proof enclosures
- Immune to effects of high temperature, vehicle vibration and background noise
- CSA, CE, and FM approved
- RS232, RS422 and analog output — compatible



Optech laser rangefinders use a precision time interval meter to measure the time for infrared laser pulses to travel from the transmitter to the target material and return to the unit's receiver. Rapid, accurate readings are possible because the unique properties of the laser are unaffected by conditions such as pressure, vacuum, temperature, tank geometry, obstacles and off-center mounting.

COMPARISON OF POSITION DETECTION TECHNOLOGIES

CONTACT SYSTEMS 	<ul style="list-style-type: none">■ Contain mechanical parts that gradually wear and fail, necessitating costly maintenance and extensive repairs■ Costly installation often requiring extended plant downtime
TRADITIONAL NON-CONTACT SYSTEMS 	<ul style="list-style-type: none">■ Limited to relatively short range■ Wide beam divergence is subject to interference from obstacles
LASER-BASED SYSTEMS 	<ul style="list-style-type: none">■ Factory calibrated■ Easy to install (wiring to and from one location only)■ Narrow beam divergence (0.28°)■ Low maintenance■ Capable of measuring 0.4 to 1,500 meters■ Distance or velocity outputs

The Laser Difference

Laser-based object positioners are a cost-effective solution to challenges in monitoring industrial processes. Housed in rugged, industrially-rated enclosures, Optech positioners are immune to the effects of high temperature, vehicle vibration and background noise. Fast update rates enable accurate measurements even when targets are moving quickly. "Last-pulse logic" and internal windowing software can filter out "false" returns from obstacles passing between the monitor and the target object.

Sentry SR & Watchman 3100

The **Sentry SR** series is the latest in laser technology, designed for both level and positioning applications. The Sentry SR operates from 0.4 meters up to 25 meters and is housed in a rugged, explosion-proof enclosure.

The **Watchman** series of non-contact object positioners give reliable measurements in extreme conditions or long range applications, from 25 meters to 250 meters (1,500 meters with reflector). The Watchman's basic properties enable fast data acquisition for accurate positioning requirements over long ranges to fast moving objects, and replaces traditional contact sensors and poorly performing non-contact devices.

The Sentry SR/Watchman family positions a variety of bulk material handling equipment:

- Tripper cars
- Plough Feeders
- Stacker/reclaimers
- Torpedo cars
- Cranes
- Ship loaders

The Sentry SR/Watchman family also determines the position of bulk material conveyor systems in a variety of industries:

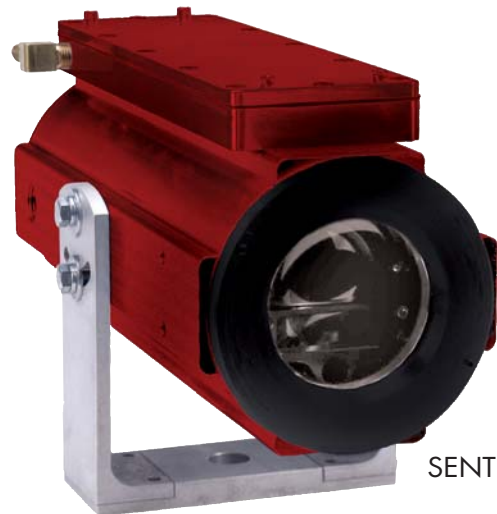
- Mining (storage facilities)
- Pulp and paper (wood chips)
- Steel manufacturing
- Mineral processing (smelters)
- Utilities (coal-fired power generating stations)
- Transportation companies (container pick/place)

Designed to remain non-intrusive, the Sentry SR and Watchman 3000 series offer viable alternatives in demanding applications where other technologies fail.



WATCHMAN 3100*

*Models shown are fully-equipped,
Please contact your local Optech Sales Specialist
for options and features available to suit your application.





SENTRY SR*

The Optech Advantage

Optech is the global market leader in advanced laser-based survey instruments, with clients around the globe. Optech products, based on the company's 30 years of expertise in pulsed laser radar (lidar), offer client-driven solutions in topographic mapping, hydrographic applications, laser imaging, space-based atmospheric monitors and landing/docking systems and industrial rangefinders.

TECHNICAL SPECIFICATIONS

	Watchman 3100	Sentry SR
		
RANGE¹		
Maximum	250 m	25 m
To reflector	1,500 m	Not applicable
Minimum	0.2 m	0.4 m
ACCURACY		
Absolute ²	Within 2 cm	Within 2 cm
Operation ³	Within 5 mm	Within 5 mm
Repeatability ⁴	Within 3 mm	Within 4 mm
LASER		
Infrared (IR) wavelength	905 nm	905 nm
Visible pointer wavelength	635 nm	650 nm
Eyesafety (IR)	Class 1(US FDA 21 CFR1040)	Class 1(US FDA 21 CFR1040) Class 1M (IEC 60825)
Beam divergence	5 mrad (0.28°)	4 mrad (0.23°)
ENVIRONMENTAL		
Operating temperature	-10° C to 50° C, Options: 150° C, -40° C	0° C to 50° C, Options: 150° C, -40° C
Storage temperature	-40° C to 70° C	-40° C to 70° C
POWER		
Input	24 VDC, 120 VAC	24 VDC, 120 VAC, 220 VAC
Consumption @ 24 VDC	36 W max	10 W max
(With heater)	101 W max	101 W max
OUTPUT		
Maximum update	20 readings/sec	5 readings/sec
Minimum update	1 reading/5sec	1 reading/60sec
Digital	RS232C, RS 422	RS232C, HART ⁶
Analog ⁵	4-20 mA, max load 1,000 ohms; 1,000 VDC isolation	4-20 mA, max load 1,500 ohms; 1,500 VDC isolation
Relays	NO	Programmable for range (set/reset/alarms)
ACCESSORIES		
	Handheld remote display/Programmer keypad: to monitor readings remotely; Aircurtain for Lens: for clean dry air to keep window clean; Articulating/standard mounting bracket: for wall mount	
ENCLOSURE		
Protection	NEMA4 IP67	NEMA 4 IP65
Explosion proof	NO	YES
Approvals	FM, CE, CSA	FM, CE, CSA, ATEX ⁶
Hazardous area classifications	Class I Div 2 Grp A,B,C,D Class II Div 1 Grp E,F,G,Class III Class I Div 1 Grp A,B,C,D (with purge kit)	Class I Div 1 Grp B,C,D - Class I Div 2 Grp A,B,C,D Class II Div 1 & 2 Grp E,F,G - Class III, Div 1 & 2 Zone 1 & 2 Grp IIA,IIB,IIC - EExd IIB + Hydrogen
PHYSICAL		
Dimensions	280(L) x 205(W) x 155(D) (mm)	305(L) x 127(W) x 127(Ø) (mm)
Weight	7 kg	6.2 kg

(1) Maximum ranges are typical and depend on target reflectance, environmental conditions (e.g. dust), and background radiation. Consult factory for details.

(2) At a measurement rate of 1/sec, the specified accuracy is absolute over full temperature range, a variety of materials, and any distance, with 1 standard deviation.

(3) At a measurement rate of 1/sec, this accuracy depends on limited variations in temperature, target, and range associated with the installation.

(4) At a measurement rate of 1/sec, under steady state conditions, within 1 standard deviation

(5) Analog accuracy is equal to absolute or operating accuracy ±0.1% of range.

(6) Pending

All information is subject to change without notice.



100 Wildcat Road • Toronto, ON • Canada M3J 2Z9

Tel: [416] 661-5904 • Fax: [416] 661-4168

Web: www.optech.on.ca • Email: inquiries@optech.on.ca