

**TORO**

Count on it.

# Sentinel™ Series

## CONTROLLERS

## COMMERCIAL

*Deciding what you want with Sentinel is as easy as one, two, three.*

*One*—Sentinel offers field satellites that operate in stand-alone mode with flow monitoring and sensor capability as standard features. *Two*—take it a step further. With Sentinel, you can utilize a hand-held radio and satellite in stand-alone mode—without any additional hardware. Exclusive to Toro, the hand-held can be used for voice and data commands. Or, *three*—the complete system. Upgrade to a central system without adding a middle manager or additional field controller hardware.



## Sentinel Global Irrigation System

### Features

#### Central System

- Ability to upgrade to a central computer system without a middle manager or additional hardware in the field satellite
- True two-way, FCC-compliant, narrow-band radio communication
- Proven product in more than 100 sites nationally over the last five years
- Reporting capabilities include:
  - Water schedule
  - Overview by group including start/stop time, group and satellite information
- Remote transceiver module allows you to talk over any distance via telephone

- Three choices of central systems:
  - Software only w/NSN telephone support
  - Computer hardware and software w/one-year NSN hardware and telephone support
  - Computer hardware and software w/five-years NSN hardware and telephone support
- Controls up to 999 field satellites
- Ability to divide system into groups representing similar field attributes
- Ability to redefine valve sequence without physically changing wire terminations in field satellite
- Ability to display projected flow by program
- System status indications for individual field satellites
- Two sensor inputs that can monitor flow, ET low-cost weather station, freeze or rain, no matter what station count



- Percent adjust by station, program or globally
- Program and communicate with a second controller of any station count within radio reception through the Map-to-Assembly function—a standard feature
- Transceiver remote assembly extends radio coverage to larger geographical region
- Standard telephone modem allows for remote access to central software via pcAnywhere™
- Alarm alerts in real time including sensor and communication errors
- Troubleshooting kit can distinguish between programming errors versus true hardware malfunctions

- On-line help screens minimize training requirements
- No middle manager required—provides fast, inexpensive and reliable communication
- Non-volatile memory, will retain all programming and real-time data
- All centrals come with a minimum of one year of NSN support
- One-year warranty on software without hardware (for warranty information on complete centrals, contact NSN)

**Note: Specifications subject to change without notice.**

**For more detailed information, contact your local Toro distributor.**

### Specifying Information Sentinel Central

Description	Service	Voltage
SGIS—Sentinel Global Irrigation System	0—Software Only w/1 Year of NSN Telephone Support 1—Software, Computer Equipment, Peripheral Hardware w/1 Year of NSN Support 5—Software, Computer Equipment, Peripheral Hardware w/5 Years of NSN Support	0—120V

**Example:** A Sentinel Central System with one year of NSN and 120V, would be specified as: **SGIS-1-0**

## Field Satellite

### Features

- Map-to-Assembly capability provides the ability to program and communicate to another field controller within radio reception
- Fixed station counts from 12 to 48 in 12-station increments
- Two sensor inputs included
- 6-week scheduling calendar
- Up to eight start times per program
- Station run times from one minute to four hours and 59 minutes
- Global adjustment from 0–250%
- Percent adjust by program from 0–250%
- 12/24 real-time clock
- Current draw monitoring will shut down a station with excessively high draw and continue program operation
- Ability to operate from one to six programs simultaneously
- Ability to connect to a laptop to download large station count programs
- Ability to read up to four open- or closed-contact switches in any station count configuration
- Upgrade to a central computer system without additional field satellite hardware or costs
- *True* two-way communication allows for changes in the field to be uploaded to the central computer and allows two-way communication with a hand-held radio in stand-alone mode

- Non-volatile memory will retain all programming and real-time data for 10 years in the event of a power failure
- Field-satellite-diagnostics capable when used with a troubleshooting kit—reducing downtime and warranty costs
- Program single or multiple stations to operate sequentially or start a program or multiple programs with just a few keystrokes
- Hand-held capability in stand-alone mode allows data commands to manually turn on stations, initiate programs or complete shutdown
- Five-year warranty

### Electrical Specifications

- Input power:
  - 110–120 V ac, 50/60 Hz
  - 14 mA (no load)
  - 400 mA (maximum load)
- Output power:
  - 24 V ac, 50/60 Hz
  - 0.25 amps per station, 2.0 amps maximum
- Station draw: 6 stations and pump maximum (also limited by software)
- Surge protection: Level 4, 24-volt output boards, 20KV @ 10 KVA
- Operating temperatures: 14° F to 140° F (–10° C to 60° C)



### Mechanical Specifications

- Dimensions:
  - Wall-mount: 17½" W x 30¾" H x 8½" D (43,5 x 78,1 x 21,9cm)
  - Pedestal-mount: 17½" W x 34½" H x 8½" D (43,5 x 87,6 x 21,9cm)
- Shipping weight:
  - Wall-mount (48 stations): 47 lbs. (21,1 Kg)
  - Pedestal-mount (48 stations): 63 lbs. (28,3 Kg)

### Specifying Information Sentinel Satellites

Configuration	Keypad	Station Count	Cabinet Type	Output	Comm.	Sensor Capable	Surge Options
SSA—Sentinel Satellite Assy.	K—Keypad	12—12 24—24 36—36 48—48	PS1—Stainless Steel Pedestal (Large) WS2—Stainless Steel Wall Mount (Large)	6—Electric 40 V ac	N—Narrow-band	S—Sensor	1—No Surge Large-capacity Terminal Block w/LEDs 4—Large-capacity Terminal Block, LEDs, Switches Chokes & Add'l Surge

**Example:** A 24-station Sentinel Satellite in a pedestal-mount cabinet with electric output, narrow-band communication and additional surge, would be specified as: **SSAK24PS16NS4**

### Specifying Information Map-to-Assembly

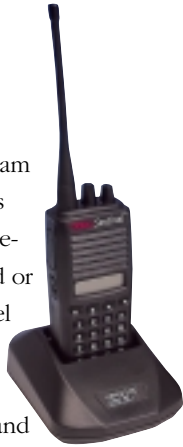
Configuration	Station Count	Cabinet Type	Output	Comm.	Sensor Capable	Surge Options
SSAMN—Sentinel Map-to-Assembly	12—12 24—24 36—36 48—48	PS1—Stainless Steel Pedestal Mount (Large) WS2—Stainless Steel Wall Mount (Large)	6—40 V ac Electric	N—Narrow-band	S—Sensor	1—No Surge Large-capacity Terminal Block w/LEDs 4—Large-capacity Terminal Block, LEDs, Switches, Chokes and Add'l Surge

**Example:** A 24-station Sentinel Map-to-Assembly with a wall-mount cabinet, electric output, narrow-band communication and additional surge, would be specified as: **SMUM24WS6NS4**

## Hand-held

### Features

- Voice and data capable
- Ability to program 128 frequencies with either wide- or narrow-band or both by channel
- Back-lit LCD allows for reading command code in full sun and low-light conditions



- Clear audible verification of system commands
- Comprehensive multi-manual functionality
- Stand-alone or central functionality
- System on and off command activation
- Allows communication from multiple hand-helds to different field controllers on the same site
- Works with Map-to-Assembly satellites
- One-year warranty



## Specifying Information Hand-held Radio

Model Number	Description
SHHR 102-2447	Sentinel Hand-held Radio Radio Programming Kit

## Remote Transceiver Assembly (SRTA)

### Features

- Serves as intermediate device between the central and field satellites when field satellites are beyond radio range
- Allows for two-way communication over a large regional area via dial-up telephone modem
- Allows for field changes to be recorded in real time
- Includes a wall-mount vandal-resistant stainless steel enclosure
- Can accommodate up to 999 field satellites from one SRTA
- Two-way FCC-compliant, 12.5 KHz, digitally synthesized, narrow-band radio
- Type-I-class rated telephone modem

### Electrical Specifications

- Input Power:
  - 115 V ac ( $\pm 10\%$ ) 50/60 Hz capable of withstanding surges up to 4.5 KV on input side
- Operating Temperature:
  - 14° F to 140° F (-10° C to 60° C)

### Mechanical Specifications

- Dimensions:
  - Wall-mount: 18 $\frac{3}{8}$ " W x 22" H x 7 $\frac{3}{4}$ " D (47,6 x 55,8 x 19,6cm)
- Shipping weight (including carton):
  - Wall-mount: 46 lbs. (101,2kg)
  - External Antenna: 7 lbs. (15,4kg)



## Specifying Information Remote Transceiver

Model No.	Description
SRTA	Sentinel Remote Transceiver Assembly

**Example:** A Sentinel Remote Transceiver with a wall-mount cabinet, and electric output, would be specified as: **SRTA**



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