Sentinel (Version 3) Central Control from Toro® is a powerful system that literally "stands guard" over large irrigation sites.

With the ability to control up to 999 field satellites from one location, users have a water management tool that provides reliability, accuracy and water savings.
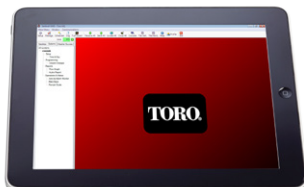
Sentinel® Central Control Systems

The newly-redesigned range of Sentinel Controllers offer a number of new features and enhancements, including a completely redesigned interface for easier standalone programming that incorporates a large backlit graphical display, new shortcut buttons for frequently-used functions, as well as a number of other additions.

Features

- **Turf Guard**
  Available with a pre-installed Turf Guard® port to operate with Turf Guard® wireless soil sensors. The upgraded Sentinel will communicate directly with up to 16 sensors per controller (1 per program), continually measuring moisture, temperature and salinity levels in the soil, and adjusting irrigation as needed.

- **Wireless Communication**
  New to the range, Sentinel now offers both short and long range remote satellites, which have the ability to communicate wirelessly with the master satellite controller.

- **Smartphone and Tablet Connectivity**
  The upgraded Sentinel WMS software package also includes iPhone® and iPad® connectivity for remote programming and alerts on ALL new systems with NSN Connect.

- **Dual Flow & Alarm Sensing**
  Now available with dual flow and dual alarm sensor capability via the optional data retrieval board. Sentinel reads, displays and reacts to under and over flow situations and tracks water usage.

- **Features For Water Management**
  Sentinel can water according to ET values by using one or a number of onsite weather stations. A water usage report is also available for historical comparison.

- **Two Wire Decoder**
  Sentinel now offers a Two Wire Decoder option, with or without the Turf Guard® feature. (Available 2014)
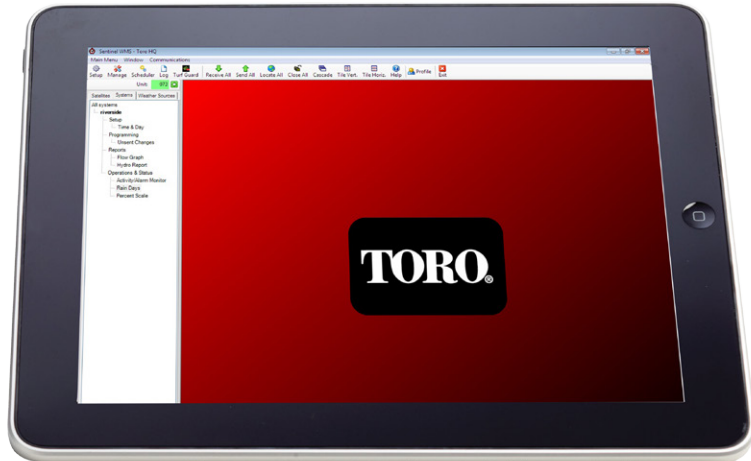
- **Multiple Communication Options**
  Communication options like 3G, radio, telephone, fiber optics and Ethernet can be mixed and matched to meet system requirements.

- **Distributed Programming**
  Store irrigation programs in the computer while allowing irrigation control at the satellite level, ensuring the loss of a component does not result in the loss of irrigation across the system.

- **Toro NSN® Support**
  All Sentinel central systems come with a minimum of two years NSN support - unlimited toll-free support with emergency paging.

- **Firmware Updating**
  Firmware is now easier than ever to update or upgrade by simply inserting a USB thumb drive.

- **Advanced Troubleshooting**
  The new satellite controller has significantly more internal memory, allowing for extensive event logging and data storage, making it easier to diagnose issues in the field.

Ordering Information

Configuration	Station	Exclosure	Communication	Frequency	Cord	Turf Guard
TSXXX	**XX**	**XXX**	**NR**	**50H**	**C**	**-XX**
TS - Toro Sentinel	12-12 station					–TG - Turf Guard
TSWSR - Toro Sentinel Wireless Short Range TSWLR - Toro Sentinel Wireless Long Range	24-24 station 36-36 station 48-48 station	WS1 - Small Powder-coated Wall Mount	NR - No Radio	50H - 50Hz	C - Corded	n/a
TSD - Toro Sentinel Two Wire Decoder	n/a	WS2 - Small Painted Cabinet				–TG - Turf Guard

Examples:
An Australian corded 24 station Sentinel Controller in a powder-coated wall mount cabinet with Turf Guard would be specified as: **TS24WS1NR50HC-TG**
An Australian corded 48 station Sentinel Two Wire Decoder in a small painted cabinet without Turf Guard would be specified as: **TSDWS2NR50HC**

Controller

Specifications and Features

- 16 programs
- Eight start times per program
- 6-week or 365 day scheduling calendar
- Station runtimes from one minute to 4 hours and 15 minutes
- Global adjustment from 0-255%
- Flow sensor ready
- Handheld remote ready
- Turf Guard ready
- Two sensor inputs included for rain sensors or other switch sensors
- Ability to connect to a laptop to download large station count programs
- Field satellites come ready for connection to optional UHF radio or 3G modem to communicate to the central computer system
- Program single or multiple stations to operate sequentially or start a program or multiple programs with just a few keystrokes
- Ability to read open- or closed-contact switches in any station count configuration
- Current monitor will disable a station if excessive amp draw is detected.
- Non-volatile memory will retain all programming and real-time data for 10 years
- Multi-language display: English, Spanish, French, and Italian
- Operating temperature: -10˚ to 60˚C
- Surge rated to 20 KV @ 10 KVA

Dimensions

- WS1 – 260 W x 387 H x 133 D
- WS2 – 356 W x 330 H x 152 D

Electrical Specifications

- Input power: 240 VAC, 50 HZ
- Station output power:
  - 24 VAC
  - 1.0 amps per station maximum
  - 2.0 amps total load
- Surge protection: 24 V output boards, 20 KV @ 10 KVA
- UL Listed

Warranty

- Five years

Software

Specifications and Features

- Control up to 999 field satellites
- Group controllers into "systems" for system-wide adjustments:
  - Rain Days
  - Percent Adjust
  - ET- Adjustment from shared weather source
- Field changes to controller programs can be uploaded to computer
- Support for the System Administration
  - Set system, program and satellite descriptions
  - Map valve positions on site maps
  - Group related satellites into systems sharing common functions
- Alarm reporting of system component failures, including communications, over/under-flow conditions, electrical problems or power failure
- Extensive reporting features:
  - Run time reports
  - Water usage
  - Alarm
  - Logging of system changes
- Water use, rain and ET accumulation
- Flow optimising to maintain optimum flow and shorten water window
- Ability to redefine valve sequence without physically changing wire terminations in field satellite
- Information overview by system and satellite
- System status indications for individual field satellite
- Map-based feedback on system status
- Internet connection allows for remote access to central software via NSN® Connect or other remote access software

Specifying Information – NSN/Sentinel Support Extensions

SSE-X-X	
Description	**Optional**
SSE	-X-X
SSE-Toro NSN Support for Sentinel Subscription Extensions*	T-1 – 1-year Extension for SGIS-0-1 or SGIS-1-T T-3 – 3-year Extension for SGIS-0-1 or SGIS-1-T C-1 – 1-year Extension for SGIS-1-0 (w/computer warranty) C-3 – 3-year Extension for SGIS-1-0

*1- and 3-year NSN extensions can be purchased up-front in conjunction with SGIS packages to provide the end-user with an additional one or three years of NSN support. For example, a customer can order the SGIS-1-0 and the SSE-C-3 which would equal five years of NSN support. These extensions are for original purchases only; existing plan renewals are still purchased through Toro NSN.

Specifying Information – Sentinel Central

SGIS-X-X	
Description	**Optional**
SGIS	-X-X
SGIS—Sentinel Central Control Irrigation System	1-T – Sentinel Central Software ONLY, 2 years NSN Phone Support 1-C – Sentinel Central WMS Software, NSN Central Computer, 2 Years NSN Support with Central Hardware Coverage 1-0 – Sentinel Central WMS Software, NSN Central Computer, UHF Radio FIU, 2 Years NSN Support with Central Hardware Coverage