SENTINEL ®
Central Control System

Engineered to the highest quality and reliability, yet simple to use, the Sentinel Central Control System is ideal for controlling multiple irrigation sites with diverse landscapes and varied watering requirements.

SIMPLICITY

Installing and setting up irrigation control over an entire system from a central computer has never been simpler. Access to screens controlling manual watering, rain shutdown, flow optimization, alarms and reports is accomplished with a simple click.

FLEXIBILITY

The Sentinel Central Control system provides the utmost in flexibility for designers, contractors, and end users. Sentinel Satellites are manufactured to operate over several different communication protocols. Satellite modularity from 12 to 48 stations allows user to expand Sentinel-controlled area without having to purchase a new satellite.

PERFORMANCE

Sentinel Satellites are shipped from the factory flow sensor and handheld remote ready. In addition, the system is compatible with a variety of weather-sensing devices such as Weather Stations and Rain Sensors which allow the user to control watering more precisely

Sentinel 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's innovative Distributed Intelligence means all irrigation program data is stored at both the central computer and in field satellites. Programming changes are made easy as true two-way communication allows irrigation programs to be changed in the field and uploaded back to the computer. As a "smart" irrigation system, Sentinel comes standard with flow monitoring and the ability to connect to weather stations for auto-adjust of station run times by ET. When it comes to safeguarding landscapes and streamlining water management practices, Toro's Sentinel System has raised the bar.

Model	Sentinel Central Control
Maximum Number Of Satellites	999 (total)
Maximum Stations Per Satellite	96 with MapTo
Number Of Programs	16 per Satellite
Ability To Make Program Changes In Field	X
Programming By Time	X
✱ Automatic ET-Based Runtime Adjustment	X
Programmable Valve Sequence	X
✱ Flow Optimization	X
Alarms & Reports	X
Station Operation Recording	X
✱ Water Use Recording	X
✱ Historical Water Use Comparison	Daily, Weekly, Yearly
Interactive Map	X
Software Only Option	X
Software + Computer Option	X
Windows® Compatible	X
Toro NSN® Support Inlcuded	Two years

Communication Options

- Narrowband Radio (450-470 MHz)
- Ethernet/Internet
- Cellular-enabled Data Modems
- Cellular Telephone
- Landline Telephone
- Spread Spectrum Radio (900 MHz)
- Fiber Optics

Model	Small Metal Wall Mount	Stainless Steel Wall Mount	Stainless Steel Pedestal	Plastic Pedestal
Number Of Stations	12, 24, 36, 48	12, 24, 36, 48	12, 24, 36, 48	12, 24, 36, 48
Modular		X	X	X
MapTo Option	X	X	X	X
ET-Adjust	X	X	X	X
Flow Sensing	X	X	X	X
Remote (SHHR) Ready	X	X	X	X
RainSensor Connection	X	X	X	X
Number Of Programs	16	16	16	16
Simultaneous Program Operation	Up to 16	Up to 16	Up to 16	Up to 16
Number Of Start Times	8 per Program	8 per Program	8 per Program	8 per Program
Max Station Runtime	4 Hours 15 Minutes	4 Hours 15 Minutes	4 Hours 15 Minutes	4 Hours 15 Minutes
Days Of The Week Programming	X	X	X	X
Odd/Even Programming	X	X	X	X
Interval Programming	X	X	X	X
✱ Flow Monitoring	X	X	X	X
✱ Water Use Logging	X	X	X	X
Multiple Levels Of High Surge Protection	Level 1 & Level 3	Level 1 & Level 4	Level 1 & Level 4	Level 1 & Level 4
Warranty	Five years	Five years	Five years	Five years

✱ *Water Management Feature*

Features & Benefits

• Simple To Use
– Microsoft® Windows-based software – daily operations and scheduling are made quick and easy.

• Features For Water Management
– ET-based watering, flow sensing and optimization, water usage report with historical comparison.

• Multiple Communication Options
– Communication options like radio, telephone, cellular, and Ethernet can be mixed and matched to meet system requirements.

• Distributed Programming
– Stores 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 centrals come with a minimum of two years of NSN support – unlimited 24-hour toll-free support with 24/7/365 emergency paging

• True Two-Way Communication
– Allows for program changes in the field to be uploaded to the central computer and for hand held to satellite communication in stand-alone mode. All communications are visually or audibly confirmed.

• Flow Sensing
– Reads, displays and reacts to under and over flow situations and tracks water usage. No additional circuit boards are required.

• High-Surge Options
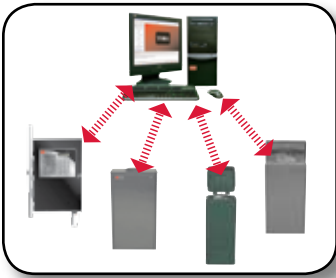– Options for three levels of surge protection.

• Weather Based Irrigation
– Sentinel waters according to ET values by using one or a number of onsite weather stations.

• Manual Station Outputs
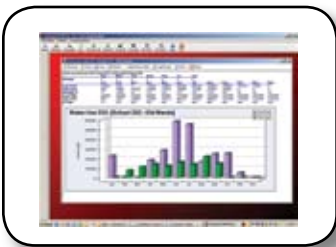– Flip the toggle switch to manually operate stations.

DISTRIBUTED INTELLIGENCE

Each Sentinel® controller is a fully intelligent unit with program data stored at both the field satellite and within the central computer. Loss of communication does not result in loss of irrigation. True two-way communication allows programming changes to occur at the on-site field controller and be uploaded to the central computer. Protection from unauthorized changes is ensured as the controller program can be easily compared to the program saved in the central computer.

WATER SAVINGS – ET-BASED
(multiple weather station options)

Effective ET-based system management can lead to water savings of 25% to 30% per year. As an additional source of savings, pipeline breaks, malfunctioning valves, and missing heads are automatically detected and shut down, preventing excessive water loss.

Specifying Information— Sentinel Central

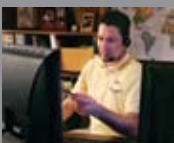| SGIS-X-X	
Description	**Optional**
SGIS	**-X-X**
SGIS—Sentinel Central Control Irrigation System	1-T—Software Only w/2 Years of NSN Telephone Support for Software 0-1—Software, Peripheral Hardware w/2 Years of NSN Telephone Support 1-0—Software, Computer Equipment, Peripheral Hardware w/2 Years of NSN Telephone Support (with computer warranty)

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 (w/computer warranty)

*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.

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 any system component failure, including communications, over/under-flow conditions, electrical problems or power failure
- Extensive reporting features:
  - Run time reports
  - Water usage
  - Alarms
  - Logging of system changes
- Water use, rain and ET accumulation
- Flow optimizing to maintain optimum flow and shorten water window
- Ability to redefine valve sequence without physically changing wire terminations in field satellite
- Information overview by group and satellite
- System status indications for individual field satellite
- Map-based feedback on system status
- Standard telephone modem or internet connection allows for remote access to central software via pcAnywhere™ or other remote access software

Toro NSN® Support – There when you need them. Every Sentinel Central purchased comes standard with two years of Toro NSN Support. Whether you have an operational issue that requires quick remedy, you need advice on water conservation and time-saving techniques, or you need education and training for operators and field technicians, Toro NSN is just a phone call away, 24 hours a day, every day.

- **24-hour, seven-day, 365 support.**
  – Worldwide, Toro NSN is always available to answer your questions, troubleshoot your system and solve your problems. And if needed, our 24-hour central component replacement service ensures minimal disruption to the operation of your irrigation system (U.S.).

- **Industry-best training — classroom and computer-based.**
  – NSN offers curriculum tailored to meet the range of user experience and proficiency.

- **Total operational confidence**
  – If your central hardware goes down, our TORO central control component replacements arrive at your facility Toro-tested, ready to keep you up and running.

- **The confidence of working with the best in the business.**
  – Toro NSN is a Microsoft® Certified Partner. Our support technicians are licensed irrigators, and our hardware technicians are A+ certified. NSN has a diagnostic lab on-site for Sentinel to duplicate field issues and investigate causes and solutions.

Small Metal Wall Mount   Stainless Steel Wall Mount   Stainless Steel Pedestal   Plastic Pedestal

Modular

Modular in 12-station increments, up to 48-stations.

Multiple Levels of Surge Protection

Options from Level 1 to Level 4 surge protection offer multiple choices to meet regional lighting protection needs. Level 4 surge rated to 20 KV @ 10 KVA.

Remote and Flow Sensor Ready

Every Sentinel Controller comes hand held compatible and flow sensor ready right out of the box. Track water usage and monitor for breaks, even in standalone mode.

Dimensions

- Small wall-mount: 10 ¼" W x 15 ¼" H X 5 ¼" D
- Stainless steel wall-mount: 17 1/8" W x 30 ¾" H x 8 5/8" D
- Stainless steel pedestal-mount: 17 1/8" W x 34 ½" H x 8 5/8" D
- Plastic Pedestal-mount: 17" W x 40" H x 16" D

Electrical Specifications

- Input power:
  - 120 VAC, 60 Hz
- Station output power:
  - 24 VAC
  - 1.0 amps per station maximum
  - 2.0 amps total load
- Surge protection: Level 4 - 20 KV @ 10 KVA
- UL Listed

Specifications and Features

- 16 programs
- Eight start times per program
- 6-week or 365-day scheduling calendar
- Station runtimes from one minute to four hours and 15 minutes
- Global adjustment from 0-255%
- Percent adjust by program from 0-255%
- Two sensor inputs included for rain sensors or other switch sensors
- Ability to connect to a laptop
- Upgrade to a central computer system without additional field satellite hardware or costs
- 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: 14° to 140° F

Optional Accessories

- TRS – Wired RainSensor
- TWRS/TWRFS – Wireless RainSensor or Wireless Rain/Freeze Sensor
- TFS – Flow Sensors
- SHHR - Hand Held Remote

Specifying Information—Sentinel Field Satellites

SSA**XX**-**XX**-**XXX**-6-N-S-**X**						
Configuration	**Station Count**	**Cabinet Type**	**Output**	**Comm.**	**Sensor Capable**	**Surge Options**
SSAXX	**XX**	**XXX**	**6**	**N**	**S**	**X**
SSAK—Sentinel Satellite Assy. with Keypad SSAMN—Sentinel MapTo	12—12 24—24 36—36 48—48	WS3—Powder-coated Wall Mount (Small) PS1—Stainless Steel Pedestal Mount (Large) WS2—Stainless Steel Wall Mount (Large) PP1—Plastic Pedestal Mount (Large)	6—Electric 24 VAC	N—Narrow-band	S—Sensor	1—Standard Surge 3—High Surge Protection on Small Wall Mount 4—High Surge Protection - Pedestals and Stainless Steel Wall Mount only
Example: A 24-station Sentinel Satellite in a metal wall-mount cabinet with electric output, narrow-band communication and surge, would be specified as: **SSAK24WS36NS3**						
Example: A 24-station Sentinel MapTo in a wall-mount cabinet with electric output, narrow-band communication and surge, would be specified as: **SSAMN24WS36NS3**						

GOLD MEMBER
IRRIGATION ASSOCIATION