AGRONOMIC
SMART SOLUTIONS

LightScout® PAR/DLI Meters

SpecConnect Cloud Technology and Mobile Apps

WatchDog® Weather Stations

Nutrient Measurement

FieldScout® Portable Soil Moisture Meters

**2023-2024
PRODUCT CATALOG**

*Celebrating
35 YEARS!*

Spectrum®
Technologies, Inc.
"To Measure Is To Know"

Spectrum® Technologies, Inc.

At Spectrum Technologies, we pride ourselves on helping our valued customers transform plant measurements into more profitable growing decisions. Since 1987, we have manufactured and distributed affordable, leading-edge plant measurement technology to agricultural, horticultural, environmental, and turf markets throughout the world, serving more than 14,000 customers in over 80 countries.

We proudly work alongside researchers, growers, golf course superintendents and industry suppliers to provide a broad line of innovative devices and software for better crop environmental monitoring, nutrient management, soil moisture measurement, irrigation scheduling and pest management.

Our products will positively impact the way you grow your crops; therefore, we stand behind every product with our 100% Satisfaction Guarantee. Our friendly and knowledgeable product support team is available to answer any questions you may have, whether you are a new customer or have worked with us for years.

Thank you for your support and commitment to innovation. We look forward to partnering with you to help you continue to grow.

Sincerely,

Mike Thurow
CEO & Founder
Spectrum Technologies, Inc.

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COMPANY OVERVIEW

Spectrum Technologies, Inc. manufactures affordable, leading-edge measurement information technology for agricultural, horticultural, environmental and turf markets worldwide.

We develop peak plant performance tools for better field output. Using the most advanced plant measurement technology, we provide growers with actionable plant health data that translates into more profitable decisions.

INDUSTRY FUTURE

With consumers demanding higher quality food and environmental conditions, the need for measurement and monitoring technology continues to grow. The need to conserve resources such as soil and water will drive the need to create more measurement information technology.

PRODUCTS

WEATHER
Temperature, Light, Wind, Rain, Relative Humidity and Leaf Wetness Monitoring

INTEGRATED PEST MANAGEMENT (IPM) TOOLS
Insect and Disease Models, IPM Scopes

SOIL MOISTURE & QUALITY MEASUREMENT
Soil Moisture, Soil Compaction, Soil EC and Water Quality Meters
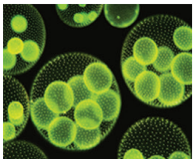
NUTRIENT MANAGEMENT
pH, EC, Na^+, K^+, NO_3, Ca^{2+} and NDVI Meters

TABLE OF CONTENTS

*Award Winning Innovations

Since 1987, Spectrum Technologies has received 25 AE50 Awards from the American Society of Agricultural and Biological Engineers, demonstrating deep commitment to innovation and quality. Look for our award-winning products throughout our catalog.

NEW

NEW OPTIONS FOR YOUR WIRELESS WEATHER STATION!

For years, our integrated WatchDog Wireless Weather Stations have provided the ability to measure essential crop data needed to make informed decisions regarding irrigation, frost, insect and disease control and nutrient management.

As we continue to innovate, our newest models come equipped with even more available sensor ports. Offering **EIGHT** general, plus one sensor port dedicated to wind speed and direction, your measurement options have expanded.

HOW DO I KNOW WHICH MODEL FITS MY NEEDS?
First, decide what measurements are important to you, then choose the model most closely tailored to your needs. Finally, purchase any additional sensors to collect all the information you need. To help guide your decision, see the chart below to clarify what each model offers.

More data provides better decision making and better return on your investment. Respond quickly and reduce crop damage with frost/temperature alerts direct to your phone when you add the frost alert package in SpecConnect. Use real-time data to respond to changing weather conditions and make timely, smart decisions.

Use our free WatchDog Mobile app to get your new weather station up and running quickly. Alternatively, configure your station from your PC using SpecConnect.

Cellular or wifi subscriptions allow data from your weather station to be sent to the SpecConnect cloud. Use your PC or the free WatchDog Mobile app to view current conditions on your phone. With the SpecConnect cloud, you can easily view reports for degree days, chill hours, disease and insect pressure, monthly weather reports, soil moisture trends and more. Use our custom reports feature to gather the data that is meaningful to you.

PRODUCT COMPARISON

	3550 ET Weather Station	3250 ET Weather Station	3540 Weather Station	3240 Weather Station	3220 Rain Station	3210 Temp/RH Frost Station	3230 Plant Growth Station	3580 Sensor Station	Range	Accuracy
Air Temperature	Included	Included	Included	Included	Included	Included	Included	Optional (external port)	-40°F to 257°F (-40°C to 125°C)	± 0.54°F (-40°F to 194°F)
Relative Humidity	Included	Included	Included	Included	Included	Included	Included	Optional (external port)	0 to 100%	± 2% @ 77°F (25°C)
Rainfall	Included	Included	Included	Included	Included	Optional	Optional	Optional	0.01" (0.254mm) resolution	± 2% at <2" (5cm)/hour
Wind Speed	Included	Included	Included	Included	Optional	Optional	Optional	Optional	0, 1 to 200mph (0, 1 to 322km/h)	± 2mph (± 3km/h) ± 5%
Wind Direction	Included	Included	Included	Included	Optional	Optional	Optional	Optional	1°-359°, 1° increments	±3°
Light Sensor	Solar Radiation Included		Optional (external port)	Optional (external port)	Optional (external port)	PAR Sensor Included	Optional (external port)		0 to 1500W/m^2 (0 to 3000µMol/m^{2}s)	±5%
Available External Sensor Ports	5	1	6	2	2	2	1	8		
Compatible With WaterScout Profiler	Yes	No	Yes	No	No	No	No	Yes		

The NEW WaterScout Profiler (Page 34) is only compatible with the 3500 Weather Station Models

Wireless ET Weather Station
Monitor Evapotranspiration (ET) data to know how much water your crops are using

OUR MOST POPULAR MODEL!

INCLUDED MEASUREMENTS: *Wind Speed/Direction, Temperature, Relative Humidity, Rainfall and Solar Radiation*

NEW! Model 3550 with FIVE additional sensor ports to measure soil moisture, leaf wetness and more! (see pages 18-20)

3550MU WatchDog Wireless ET Station LTE-M Modem - US/Canada/Mexico
3550ME WatchDog Wireless ET Station LTE-M Modem - GLOBAL *(Outside US/Canada/Mexico)*
3550C4 WatchDog Wireless ET Station LTE CAT-4 (4G) Modem - US/Canada/Mexico
3550CA WatchDog Wireless ET Station LTE CAT-4 (4G) Modem - APAC
3550CE WatchDog Wireless ET Station LTE CAT-4 (4G) Modem - Europe
3550CG WatchDog Wireless ET Station LTE CAT-4 (4G) Modem - Latin America
3550WF WatchDog Wireless ET Station Wi-Fi Modem

If you only need one additional sensor port, choose one of these 3250 models:
3250MU WatchDog Wireless ET Station LTE-M Modem - US/Canada/Mexico
3250ME WatchDog Wireless ET Station LTE-M Modem - GLOBAL *(Outside US/Canada/Mexico)*
3250C4 WatchDog Wireless ET Station LTE CAT-4 (4G) Modem - US/Canada/Mexico
3250CA WatchDog Wireless ET Station LTE CAT-4 (4G) Modem - APAC
3250CE WatchDog Wireless ET Station LTE CAT-4 (4G) Modem - Europe
3250CG WatchDog Wireless ET Station LTE CAT-4 (4G) Modem - Latin America

Wireless Weather Station
Monitor weather conditions for more profitable crops and field activities

INCLUDED MEASUREMENTS: *Wind Speed/Direction, Temperature, Relative Humidity, Rainfall*

NEW! Model 3540 with SIX additional sensor ports to measure soil moisture, leaf wetness and more! (see pages 18-20):

3540MU WatchDog Wireless Station LTE-M Modem - US/Canada/Mexico
3540ME WatchDog Wireless Station LTE-M Modem - GLOBAL *(Outside US/Canada/Mexico)*
3540C4 WatchDog Wireless Station LTE CAT-4 (4G) Modem - US/Canada/Mexico
3540CA WatchDog Wireless Station LTE CAT-4 (4G) Modem - APAC
3540CE WatchDog Wireless Station LTE CAT-4 (4G) Modem - Europe
3540CG WatchDog Wireless Station LTE CAT-4 (4G) Modem - Latin America
3540WF WatchDog Wireless Station Wi-Fi Modem

If you only need two additional sensor ports, choose one of these 3240 models:
3240MU WatchDog Wireless Station LTE-M Modem - US/Canada/Mexico
3240ME WatchDog Wireless Station LTE-M Modem - GLOBAL *(Outside US/Canada/Mexico)*
3240C4 WatchDog Wireless Station LTE CAT-4 (4G) Modem - US/Canada/Mexico
3240CA WatchDog Wireless Station LTE CAT-4 (4G) Modem - APAC
3240CE WatchDog Wireless Station LTE CAT-4 (4G) Modem - Europe
3240CG WatchDog Wireless Station LTE CAT-4 (4G) Modem - Latin America
3240WF WatchDog Wireless Station Wi-Fi Modem

ASABE AE50 outstanding innovations AWARD

WatchDog®

3210 Wireless Temperature/RH Frost Station

Prevent frost damage with temperature alerts sent directly to your phone (requires frost alert package subscription on SpecConnect). Monitor site-specific conditions for insect and disease pressure with an optional leaf wetness sensor.

INCLUDED MEASUREMENTS: *Temperature, Relative Humidity*

3210MU WatchDog Wireless Frost Station LTE-M Modem - **US/Canada/Mexico**
3210ME WatchDog Wireless Frost Station LTE-M Modem - **GLOBAL** *(Outside US/Canada/Mexico)*
3210C4 WatchDog Wireless Frost Station LTE CAT-4 (4G) Modem - **US/Canada/Mexico**
3210CA WatchDog Wireless Frost Station LTE CAT-4 (4G) Modem - **APAC**
3210CE WatchDog Wireless Frost Station LTE CAT-4 (4G) Modem - **Europe**
3210CG WatchDog Wireless Frost Station LTE CAT-4 (4G) Modem - **Latin America**
3210WF WatchDog Wireless Frost Station Wi-Fi Modem

3220 Wireless Rain Station

Monitor rainfall and temperature/humidity in remote fields to effectively manage irrigation scheduling and adjust field activities to avoid soil compaction. An essential solution for storm water management.

INCLUDED MEASUREMENTS: *Temperature, Relative Humidity, Rainfall*

3220MU WatchDog Wireless Station LTE-M Modem - **US/Canada/Mexico**
3220ME WatchDog Wireless Station LTE-M Modem - **GLOBAL** *(Outside US/Canada/Mexico)*
3220C4 WatchDog Wireless Station LTE CAT-4 (4G) Modem - **US/Canada/Mexico**
3220CA WatchDog Wireless Station LTE CAT-4 (4G) Modem - **APAC**
3220CE WatchDog Wireless Station LTE CAT-4 (4G) Modem - **Europe**
3220CG WatchDog Wireless Station LTE CAT-4 (4G) Modem - **Latin America**
3220WF WatchDog Wireless Station Wi-Fi Modem

OPTIONS:
Two available sensor ports to monitor site-specific conditions:
- Add a soil moisture sensor to know what effect the rain has on the actual moisture in the soil
- Add a leaf wetness sensor to monitor disease and insect pressure
- *OR* add both soil moisture and leaf wetness sensors

3230 Wireless Plant Growth Station

Grow high quality, profitable plants by measuring Daily Light Integral (DLI), Vapor Pressure Deficit (VPD), Day/Night Temperature Difference (DIF) and more! (Includes aluminum stand for bench use)

INCLUDED MEASUREMENTS: Quantum (PAR) Light, Temperature, Relative Humidity

THREE MODELS!
Choose the one that matches your supplemental lighting

STANDARD (3230XX): *Includes the 3668S Par Light sensor to measure broadband light sources such as Sunlight, HPS, HID and Fluorescent*
PRO (3230XXP): *Includes the 3668A Full-Spectrum Par Light sensor to measure all light sources, including LED*
ASPIRATED (3230XXA): *Includes an aspirated radiation shield for the temperature/humidity sensor, plus the 3668A Full-Spectrum PAR Light sensor to measure all light sources, including LED*

3230(MU)/(P)/(A) WatchDog Wireless Plant Growth Station LTE-M Modem - US/Canada/Mexico
3230(ME)/(P)/(A) WatchDog Wireless Plant Growth Station LTE-M Modem - GLOBAL *(Outside US/Canada/Mexico)*
3230(C4)/(P)/(A) WatchDog Wireless Plant Growth Station LTE CAT-4 (4G) Modem - US/Canada/Mexico
3230(CA)/(P)/(A) WatchDog Wireless Plant Growth Station LTE CAT-4 (4G) Modem - APAC
3230(CE)/(P)/(A) WatchDog Wireless Plant Growth Station LTE CAT-4 (4G) Modem - Europe
3230(CG)/(P)/(A) WatchDog Wireless Plant Growth Station LTE CAT-4 (4G) Modem - Latin America
3230(WF)/(P)/(A) WatchDog Wireless Plant Growth Station Wi-Fi Modem

3580 Wireless Sensor Station

Monitor the plant inputs that are important to you, perfect when multiple sensors of the same type are needed

OUR MOST VERSATILE MODEL! CHOOSE EVERY SENSOR AND MEASURE WHAT YOU NEED.

If you are in an environment where measuring soil moisture is important, this station model is your solution. Measure soil moisture and temperature at different depths and have data immediately accessible to you. Compatible with the WaterScout Soil Moisture Profiler.

INCLUDED MEASUREMENTS: None included, ideal where multiple sensors are needed of your own choice

3580MU WatchDog Wireless Sensor Station LTE-M Modem - US/Canada/Mexico
3580ME WatchDog Wireless Sensor Station LTE-M Modem - GLOBAL *(Outside US/Canada/Mexico)*
3580C4 WatchDog Wireless Sensor Station LTE CAT-4 (4G) Modem - US/Canada/Mexico
3580CA WatchDog Wireless Sensor Station LTE CAT-4 (4G) Modem - APAC
3580CE WatchDog Wireless Sensor Station LTE CAT-4 (4G) Modem - Europe
3580CG WatchDog Wireless Sensor Station LTE CAT-4 (4G) Modem - Latin America
3580WF WatchDog Wireless Sensor Station Wi-Fi Modem

View Data on the WatchDog App, Integrates with SpecWare Software

WatchDog®

Retriever & Pups

Our Retriever & Pups Solution sends real time data to your laptop, tablet or smartphone, anywhere you can access the internet. Trust the data and eliminate the guesswork! Each Retriever can support up to 12 Pups. Each Pup can support four different sensors and you can receive customized threshold alerts. Our sensors measure everything from soil moisture to light, wind, rain, humidity and more.

Devices can be placed within a 1/2 mile line of sight of each other, each retriever can support up to 12 Pups

Expand your network by adding WatchDog Weather Stations to bring data from every corner of your property directly to you.

The 3000 Series Wireless Weather Stations are available with wireless mesh radios to fully participate in Retriever and Pup networks. Setup is easy with the modular design that includes the integral solar panel and rechargeable battery for reliable power. Customize your stations with additional sensors that meet your needs. *(Note: Sensors shown here are not included with the station, but can be purchase separately)*

3250DU ET Pup Station

Monitor evapotranspiration (ET) to effectively manage irrigation with respect to soil moisture loss. Includes sensors for Rain, Temperature/RH, Solar Radiation and Wind Speed and Direction.

3250DU

3240DU Weather Pup Station + 6470-20 Soil Moisture/EC/Temperature Sensor

Monitor weather above and soil moisture below ground to effectively manage irrigation, plan spray applications and schedule field activity.

3240DU

6470-20

3220DU Rain Pup Station + 3666 Leaf Wetness Sensor

Monitor rainfall for more effective irrigation scheduling and to adjust field activities to avoid soil compaction. Monitor and note site-specific conditions for disease and insect pressures.
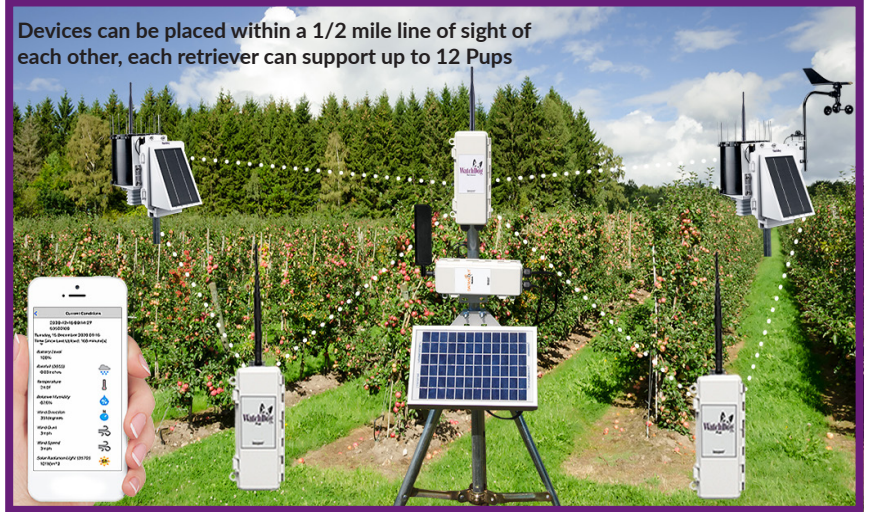
3220DU

3666

3210DU Temperature/RH Pup Station + 6470-20 Soil Moisture/EC/Temperature Sensor + 6460-20 Soil Moisture Sensor

Detect frost and be alerted to conditions in your crops. Monitor and note site-specific conditions for insect pressure. Remotely monitor soil moisture at two depths.

3210DU

6460-20

6470-20

3900 Irrigation Pup Station

Flexibly monitor both soil moisture and/or EC in a variety of soil textures for better irrigation decisions.

3900

6470-20

6460-20

SOIL SENSORS

WaterScout SMEC300 Soil Moisture/EC/ Temperature Sensor	**MEASURES:** Soil Moisture (Volumetric Water Content), EC, Temperature VWC: 0 - Saturation (typically 50%), **ACCURACY:** ±3% EC: 0 - 10mS/cm, **Accuracy:** ±2% **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations and Pups Requires Purchase of WaterScout Calibration Device for accurate EC measurement	6470-6	WaterScout SMEC300 Sensor with 6' (1.8m) Cable
		6470-20	WaterScout SMEC300 Sensor with 20' (6.1m) Cable
		6470CAL3V	WaterScout Calibration Device
		2251	Conductivity Standard 1.41mS/cm, 250mL
WaterScout SM100 Soil Moisture Sensor	**MEASURES:** Soil Moisture (Volumetric Water Content) VWC: 0 - Saturation (typically 50%), **ACCURACY:** ±3% **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations and Pups	6460	WaterScout SM100 Sensor with 6' (1.8m) Cable
		6460-20	WaterScout SM100 Sensor with 20' (6.1m) Cable
Watermark Soil Moisture Sensor	**MEASURES:** Soil Moisture TENSION: 0 - 200 centibars **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations and Pups	6450WD	Watermark Sensor with 11' (3.3m) Cable
		6450WD20	Watermark Sensor with 25' (7.6m) Cable
External (Soil) Temperature Sensor	**MEASURES:** Soil, Air or Water Temperature RANGE: -25°F to 212°F (-32°C to 100°C), **ACCURACY:** ±1°F (0.5°C) **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations and Pups	3667	External (Soil) Temperature Sensor with 6' (1.8m) Cable
		3667-20	External (Soil) Temperature Sensor with 20' (6.1m) Cable

LIGHT SENSORS

Full Spectrum Quantum PAR Light Sensor	Accurately measures light intensity across the full PAR spectrum, including LED lights **MEASURES:** PAR light between 400-700 nanometers RANGE: 0–3000 $\mu mol/m^2 s^{-1}$, **ACCURACY:** ± 5% **COMPATIBILITY:** WatchDog 3000 and 2000 Series Stations and Pups	3668A	Full Spectrum Quantum PAR Light Sensor
LightScout Quantum Light Sensors	**MEASURES:** PAR Light between 400 - 700 nanometers from broadband sources Sensor bars average PAR light readings to minimize the effects of small shadows Sensor bars are 19" (48cm) long and include mounting brackets **RANGE for 1000 Series Micro Stations:** 0 - 2500μmol $m^{-2}s^{-1}$, **ACCURACY:** ±5% **RANGE for all other Stations and Pups:** 0 - 3000μmol $m^{-2}s^{-1}$, **ACCURACY:** ±5% **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations and Pups	3668S	LightScout Quantum Light Sensor
		3668I3	LightScout Quantum Light 3 Sensor Bar
		3668S6	LightScout Quantum Light 6 Sensor Bar
LightScout Silicon Pyranometer	**MEASURES:** Solar Radiation between 300 and 1100 nanometers **RANGE for 1000 Series Micro Stations:** 0 to 1250W/m^2, **ACCURACY:** ±5% **RANGE for all other Series and Pups:** 0 to 1500W/m^2, **ACCURACY:** ±5% **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations and Pups	3670I	LightScout Silicon Pyranometer
LightScout UV Light Sensor	**MEASURES:** UV Radiation between 250 to 400 nanometers RANGE: 0-200μmol $m^{-2}s^{-1}$, **ACCURACY:** ±5% **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations and Pups	3676I	LightScout UV Light Sensor

ENVIRONMENTAL SENSORS

Temperature (Micro) Sensor	**MEASURES:** Surface Temperature of leaves, buds and other tiny mediums RANGE: -25°F - 212°F (-32°C - 100°C), **ACCURACY:** ±1°F (0.5°C) **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations and Pups	3667S	Temperature (Micro) Sensor
Tipping Bucket Rain Collector	**MEASURES:** Rainfall in 1/100 inch increments, self emptying and freeze resistant RANGE: 0.01" (0.25mm) **ACCURACY:** <2" (5cm) per hour **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations	3665R	Tipping Bucket Rain Collector
Leaf Wetness Sensor	**MEASURES:** Leaf wetness with a resistance-based sensor designed to replicate a leaf RANGE: 0 (dry) to 15 (wet) **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations and Pups	3666	Leaf Wetness Sensor

DIGITAL SENSORS & MISCELLANEOUS ACCESSORIES

DIGITAL SENSORS *(FOR WATCHDOG PUPS & 3500 MODEL WEATHER STATIONS)*

Digital Temperature/RH Sensor with Aspirated Radiation Shield	**MEASURES:** Temperature, Relative Humidity, includes 6' (2m) cable and solar charging system to power internal fan **RANGE:** -40°F to 212°F (-40°C to 100°C), 0 to 100% RH **ACCURACY:** ±0.54°F from 50°F to 131°F (±0.3°C from 10°C to 55°C) , ±2.5% RH **OPERATING TEMPERATURE:** 14°F to 140°F (-10°C to 60°C)	3613ARS	Temperature/RH Sensor with Aspirated Radiation Shield
Digital Temperature/RH Sensor with Passive Radiation Shield	**MEASURES:** Temperature, Relative Humidity, includes 6' (2m) cable **RANGE:** -40°F to 212°F (-40°C to 100°C), 0 to 100% RH **ACCURACY:** ±0.54°F from 50°F to 131°F (0.3°C from 10°C to 55°C), ±2.5% RH	3613THS	Temperature/RH Sensor with Passive Radiation Shield
Digital Rain Collector	**MEASURES:** Rainfall in 1/100 inch increments, self-emptying and freeze resistant **RANGE:** 0.01", 0.25mm, **ACCURACY:** ±2% at < 2" (5cm) per hour	3665RD	Digital Rain Collector
Digital Anemometer	**MEASURES:** Wind Speed/Direction, includes 40' cable **RANGE:** 0 - 359°, **ACCURACY:** ±3° **RANGE:** 0, 1 to 200mph (0, 1 to 322km/h, **ACCURACY:** ±2mph (±3km/h), ±5%	3305ADD	Digital Anemometer
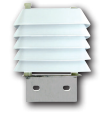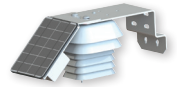
MISCELLANEOUS SENSOR CABLES

General Input Cables	Connect non-WatchDog Sensors to your WatchDog Station Item 3673 **RANGE:** 0 - 3V, **ACCURACY:** ±0.005V Item 3674 **RANGE:** 0 - 20.1mA, **ACCURACY:** ±1% **COMPATIBILITY:** WatchDog 3000, 2000 and 1000 Series Stations and Pups	3673	0-3V Input Cable
		3674	4-20mA Input Cable
Sensor Extension Cable	20' (6m) Extension for all sensors (except digital), connect up to 3 cables per sensor	3664	Sensor Extension Cable

MISCELLANEOUS ACCESSORIES

Tripod Mount	Rugged galvanized steel folding tripod and 3' (1m) pole	3396TPS	Tripod Mount with Ground Stakes
		3396TP	Tripod Mount without Ground Stakes
Bird Guard	Reduce debris and maintenance, improve accuracy Adjustable to fit 8" diameter rain collectors	3665BG	Bird Guard
Radiation Shield	Protect your Micro Station or Data Logger from rain and measurement-distorting solar radiation **COMPATIBILITY:** 1000 Series Micro Stations and A-Series Data Loggers	3663A	Radiation Shield
Sliding Enclosure	Water resistant, mounts to pole or post **COMPATIBILITY:** 1000 Series Micro Stations	3658A	Sliding Enclosure
Waterproof Enclosure	Clamshell Enclosure **COMPATIBILITY:** 1000 Series Micro Stations (Models 1400 or 1200, plus soil sensors)	3659WD1	Waterproof Enclosure
Alarm Output Module	Triggers an external device based on a sensor reading **COMPATIBILITY:** WatchDog 2000 Series Stations (Full and Mini)	3672	Alarm Output Module

COMMUNICATION & CABLE OPTIONS

COMMUNICATION OPTIONS   *(FOR 2000 & 1000 SERIES WEATHER STATIONS)*

Mid-Range Wireless Communications Up to 2 miles (3km)	Experience the advantages of real-time weather information by connecting your 2000 Series Remote Weather Stations to a PC up to 2 miles (3km) away (requires line of sight from Station to Base).	3393B	Mid-Range Wireless Base Station
	Base station features a weatherproof case and 50' (15m) cable (terminating in a 9-pin serial connection) to allow high mounting for the greatest range. Remotes include whip antenna, solar panel and rechargeable batteries (900 MHz).	3393W	Mid-Range Wireless for Remote Station
WatchDog 1000/2000 Series Data Shuttle	Transport weather data from your 2000 Series Stations or 1000 Series Micro Stations to your host PC. Holds data for multiple stations (up to 5 Full, 10 Mini, or 12 Micro Stations). Includes soft-sided case (also available separately as Item 7500). Requires SpecWare Basic or Pro.	3679WD1	WatchDog 1000/2000 Data Shuttle

COMMUNICATION CABLES

Direct Connect Cables for 3500 Model & 2000 Series Weather Stations	Connect your WatchDog Weather Station directly to your PC with a 75' (22.8m) cable, 9-pin serial connection on PC end, may require USB adapter (Item 3661U9)	3660-75SP	75' (22.8m) Direct Connect Cable, includes surge protectors for both ends of the cable connection
		3660DP	75' (22.8m) Powered Direct Connect Cable, includes AC adapter; no surge protectors
Direct Connect Cables for 3200 Model Weather Stations and Retrievers	Connect your WatchDog Weather Station directly to your PC with a 75' (22.8m) cable, 9-pin serial connection on PC end, may require USB adapter (Item 3661U9)	3927C75	75' (22.8m) Powered Direct Connect Cable, includes AC adapter; no surge protectors
Short Range Modem Pair	Use short-range modems to maintain signal on wired connections up to 4,000' (1.2km), 9-pin serial connection on PC end, may require USB adapter (Item 3661U9)	3365WD2	Short Range Modem Pair
USB to 3.5mm Stereo Plug Adapter	Connect WatchDog and FieldScout devices directly to your computer's USB port	3661U	USB to 3.5mm Stereo Plug Adapter
USB to 9 Pin Serial Adapter	Connect 9 Pin serial cables (such as Item 3660-75SP) directly to your computer's USB port	3661U9	USB to 9 Pin Serial Adapter

CHOOSE YOUR PUPS

General WatchDog Pup Information
- Communication range of 2,500 ft (about 1/2 mile), line-of-sight installation between devices
- Pups act as repeaters to get data to the Retriever
- 900 MHz radios in this catalog
  868 MHz also available for International use (contact for details)

3000 Series Pup Weather Station
Choose from 4 pre-packaged weather stations based on your needs:
3xxxDU WatchDog Wireless Weather Pup Station, 900Mhz - North America and Other
3xxxDA WatchDog Wireless Weather Pup Station, 917Mhz - Australia/New Zeland
3xxxDE WatchDog Wireless Weather Pup Station, 868Mhz - Europe

3900 WatchDog Sensor Pup
- Connect up to 4 external sensor inputs per Pup
- Transmits data to Retriever (directly or via other Pups)
- Includes 6 lithium AA batteries (Solar Power under Step 4 Optional Accessories)
- Single button operation: check battery status, signal strength and join sensor network
- Tri-colored LEDs indicate battery level, signal strength and data communication status

3902 WatchDog Repeater Pup
- Serves as "signal booster" to provide a path for signal transmission around obstacles or to extend range
- No sensor inputs of its own
- Includes 6 lithium AA batteries (Solar Power under Step 4 Optional Accessories)

CHOOSE YOUR SENSORS
Choose sensors for what you will measure. Choose up to 2 sensors for 3000 Series Pup Weather Stations and up to 4 sensors per WatchDog Sensor. Pup

3613ARS Temperature/RH Sensor with Aspirated Radiation Shield
3613THS Temperature/RH Sensor with Passive Radiation Shield
3665RD Digital Rain Collector with Bird Guard (Sensor Pup Only)
3305ADD Digital Anemometer (Sensor Pup Only)
6470-20 WaterScout SMEC 300 Sensor with 20' (6.1m) Cable
6460-20 WaterScout SM 100 Sensor with 20' (6.1m) Cable
6450WD20 Watermark Sensor with 25' (7.6m) Cable
3667 External (Soil) Temperature Sensor with 6' (1.8m) Cable
3666 Leaf Wetness Sensor
3670I LightScout Silicon Pyranometer
3668S LightScout Quantum Light Sensor

ADD YOUR RETRIEVER
Receives all data from Pup network, each Retriever supports up to 12 Pups.
3910 WatchDog Retriever
- Includes USB Flash Drive and USB data cable
- Includes 6 lithium AA batteries, can also be powered by DataScout modem, Direct-Connect cable, or Solar Power Package (see Step 4 Optional Accessories)
- Single button operation: switch modes, download data, upload configuration and check battery status
- Tri-colored LEDs indicate mode, battery level, data communication status and configuration status
- Non-volatile memory preserves your logged data, even when the batteries are removed
- 900 MHz radios *(868 MHz also available for International use - contact for details)*

STEP 4
OPTIONS

*TRIPOD?
BATTERY POWERED?
SOLAR POWER?*

ADD OPTIONAL ACCESSORIES
Additional items you might want to add when setting up your network

3654P10 Spec10 Pro Software
SpecWare Pro software version 10 or later may be used to view Pup data on PC. If using the SpecConnect Web Portal all data can be viewed online (SpecWare software not required).

3999 Solar Power Package for Pups and Retrievers
Includes 5W solar panel and 6V 4.5Ah rechargeable battery

3396TPS Tripod Mount with Stakes

3925 Antenna Extension Cable - 10' (3m)
Includes mounting bracket and hardware for use with Pups, Retrievers and DataScouts

3927C75 PC Direct Connection Cable - 75' (23m)
Connect your Retriever directly to your PC. Includes power and data cables, AC/DC power adapter and DC plug adapter. Has 9-pin serial connection on PC end, may require USB adapter (Item 366IU9).

3926 AC/DC Power Adapter

STEP 5
MODEM

WI-FI OR CELLULAR?

*3928M DataScout
Cellular Modem
Mounted with a
WatchDog Retriever*

CHOOSE YOUR MODEM
Plenty of choices to receive your data

- Communicate data to the web using either a Cellular or Wi-Fi signal
- Single button operation: test communications, pair with station and check battery status
- Tri-colored LEDs indicate battery level, data communication and wireless signal/connection status
- Power Options: choose between solar power package which includes rechargeable battery and 5W solar panel, or Item 3926 AC/DC power adapter (Max 17VDC)
- Required for connection to SpecConnect, sold separately
- Provides power to attached WatchDog Stations and Retrievers

Cellular Modems
3928M LTE-M Modem - US/Canada/Mexico
3929M LTE-M Modem - GLOBAL *(outside US/Canada/Mexico)*
3933M LTE-CAT4 (4G) Modem - US/Canada/Mexico
3934M LTE-CAT4 (4G) Modem - Europe
3935M LTE-CAT4 (4G) Modem - APAC
3936M LTE-CAT4 (4G) Modem - Latin America
3999 Solar Power Module
Add to existing modem at any time

WiFi Modems
3920 WiFi Modem AC/DC Powered
Includes 3926 AC/DC Power Cord
3920S WiFi Modem Solar Powered
Includes solar panel and rechargeable battery

*3928M DataScout
Cellular Modem*

*3920M DataScout
WiFi Modem*

Options
- 3910 WatchDog Retriever - The DataScout Modem and the Retriever can share the power from the solar power package
- 3925 Antenna Extension Cable available for installations with weak reception

Compatibility Requirements
- 2000 Series Full Weather Stations - must be running firmware version 7.6 or above
- WatchDog 2000 Series Mini Stations - must be running firmware version 4.1 or above

SpecConnect

MANAGE YOUR SITE DATA WHEREVER, WHENEVER

SpecConnect is a Cloud Based service that allows you to access the data from your compatible WatchDog and FieldScout products on demand from your phone, PC or tablet.

Use this powerful tool as a central point for viewing and evaluating real-time data instantaneously for better decisions. SpecConnect can help improve yield and quality, conserve resources, increase profits and decrease risk by viewing current weather conditions and factors.

- Configure your network from your computer, smartphone, or tablet
- Easy and simple to navigate
- 100% customizable dashboard
- Supports multiple user logins

Custom Report Templates

Chill Hours Units and Portions*	Edit
Degree Days*	Edit
Irrigation - Watermark*	

Irrigation Events   K-Factor

Report | **Chart**

ET Reference Chart

Reports

Multi Station/Sensor Report	Hourly Report
European Food Safety Administration Report	Single Station Export

ET Report

Date Range 11/21/2022 to 12/20/2022   Spectrum 3000ET Demo WS (54...)

Irrigation Events   K-Factor

Report | Chart

Date	Temp Low	Temp High	Temp Mean	RH Low	RH High	Solar Radiation	Wind Speed	Rainfall	Cur Rai
2022-11-21	26.80	47.60	37.20	42.20	80.90	52.58	5.00	0.00	0.00
2022-11-22	24.20	53.60	38.90	38.00	86.40	52.34	2.00	0.00	0.00
2022-11-23	28.70	59.80	44.25	54.90	85.10	51.44	2.00	0.00	0.00

Current Conditions

Absolute Humidity	3.6 g/m³
Dew Point	24.6 F
VPD	0.13 kPa
Wet Bulb	28.2 F
Delta T	2.7 F
Heat Index	27.32 F
ET Ref - 24-hour	0.01 inches

B2: Relative Humidity 77.3 %
C1: Wind Direction 310 degrees (NW)
D1: Solar Radiation Light 157 W/m^2
E1: Temperature 32.6 F

INFORMATION AT YOUR FINGERTIPS

- Map view allows you to see all station locations and **Current Conditions**
- Run **Standard Reports** to provide you with the data you need to make informed decisions
- Choose from a variety of **Custom Report Templates**
- Create your own **Custom Template** for full data analysis that can be downloaded
- Choose optional plant disease and insect models
- Receive customized alerts via text or email with the purchase of the **Alerts Function**
- Integrate with your current system by purchasing our **API Service**
- SpecConnect is compatible with:
    - WatchDog 3000 & 2000 Series Weather Stations
    - WatchDog 2000 Series Mini Stations
    - WatchDog Retriever & Pups
    - FieldScout TDR 350/150
    - FieldScout TruFirm
    - Data file uploads for SC900, TDR300, SPAD, CM1000, TCM500

WatchDog Mobile

SCAN TO DOWNLOAD

Use our free WatchDog Mobile app to get your new weather station up and running quickly.

SPECCONNECT SUBSCRIPTIONS

WatchDog Subscriptions	
3000	SpecConnect Initial SetUp Fee
3010xx*	SpecConnect Pro 1-Year **Cellular** Subscription for US/Canada (Per WatchDog Product) *(*xx specifies region)*
3030	SpecConnect Pro 1-Year **WiFi** Subscription (Per WatchDog Product)

FieldScout Subscriptions	
3035A	SpecConnect FieldScout Pro 1 Year Subscription (1-3 FieldScout Products)
3035B	SpecConnect FieldScout Pro 1 Year Subscription (4-7 FieldScout Products)
3035C	SpecConnect FieldScout Pro 1 Year Subscription (8 or More FieldScout Products)

Additional Devices and Services	
3040	Additional Login (1 Year)
3065	API Service (One Time Charge)
3070	Alerts Function (1 Year) Up to 4 phone numbers/emails
3055	Additional WatchDog Pup Product - WiFi (1 Year)
3046	Additional WatchDog Product - Low Cellular (1 Year) *15-60 minute interval mean sensor values only*
3045US	Additional WatchDog Pup Product - Cellular (1 Year)

Disease and Insect Forecast Model Packages

Be proactive in your management of diseases and insects by adding forecast models to your SpecConnect subscription.
- Each package uses field-tested and validated algorithms along with your data to forecast the potential for the appearance of your crop's most notorious enemies
- Save money by spraying only when necessary
- Quickly produce the documentation needed to support your IPM decisions
- 1 year subscriptions

3095TC SpecConnect Tomato Alert Package
Required Sensors: Leaf Wetness and Temperature
Models Included: Tom Cast, Insect Models

3095CHP SpecConnect Cherry Alert Package
Required Sensors: Leaf Wetness and Temperature
Models Included: Leaf Spot, Insect Models

3095APP Spec Connect Apple/Pear Alert Package
Required Sensors: Leaf Wetness and Temperature
Models Included: Apple Scab (Modified Mills, Cornell, UC Davis California), Fire Blight (Maryblyt, Cougarblight), Sooty Blotch/Flyspeck, Insect Models

3095GAP SpecConnect Grape Alert Package
Required Sensors: Leaf Wetness, Temperature and Relative Humidity
Models Included: Powdery Mildew (Thomas-Gubler), Black Rot (Spotts), Downey Mildew, Botrytis, Phomopsis Cane Leaf Spot, Insect Models)

3095POP SpecConnect Potato Alert Package
Required Sensors: Leaf Wetness and Temperature
Models Included: Early Blight, Late Blight (BliteCast), Insect Models

3095TUP Spec Connect Turf Alert Package
Required Sensors: Air and Soil Temperature, Relative Humidity and Rain
Models Included: Brown Patch (Schumann), Pythium (Nutter, Schein), Dollar Spot (Hall, Mills/Rockwell), Insect Models

3095NUP SpecConnect Nut Alert Package
Required Sensors: Leaf Wetness and Temperature
Models Included: Almond Alternaria Leaf Spot, Almond Anthracnose, Pecan Scab, Pistachio Panicle and Shoot Blight, Walnut Blight, Insect Models

COLLECT MEASUREMENTS THAT MATTER TO YOU!

Spectrum's **WatchDog Station Data Loggers** are ideal when real time data and constant round the clock monitoring is not needed. This economical option is perfect to gather measurements and data that is important to you, but on your own schedule. Data can be transferred from the internal logger to a USB flash drive and processed with SpecWare Pro Software. The 3000 Series Data Loggers offer all-in-one simple setup. With Bluetooth connectivity and the free WatchDog mobile app, they are perfect for fields, orchards, vineyards and greenhouses.

How is Data Accessed

1. **SpecConnect:** WiFi or Cellular Communication: Access real time data from your PC, tablet or phone. Data loggers are not wireless and require the purchase of the DataScout Modem purchase should you want to utilize SpecConnect.
2. **Direct Connect:** Download from the station to your PC. Requires SpecWare 10 Pro.
3. **USB Flash Drive:** Transport data from your station to your PC (flash drive not included). Requires SpecWare 10 Pro.

ET Station Data Recorder
Monitor Evapotranspiration (ET) data to know how much water your crops are using

INCLUDED MEASUREMENTS: *Wind Speed/Direction, Temperature, Relative Humidity, Rainfall and Solar Radiation*

NEW! Model 3550 with FIVE additional sensor ports to measure soil moisture, leaf wetness and more! (see pages 18-20)
3550DR WatchDog ET Station Data Recorder

If you only need one additional sensor port, choose Model 3250
3250DR WatchDog ET Station Data Recorder

Weather Station Data Recorder
Monitor weather conditions for more profitable crop and field activities

INCLUDED MEASUREMENTS: *Wind Speed/Direction, Temperature, Relative Humidity, Rainfall*

NEW! Model 3540 with SIX additional sensor ports to measure soil moisture, leaf wetness and more! (see pages 18-20)
3540DR WatchDog Station Data Recorder
If you only need two additional sensor ports, choose Model 3240
3240DR WatchDog Station Data Recorder

3220 Rain Station Data Recorder
Monitor rainfall data for more effective irrigation scheduling and to adjust field activities to avoid soil compactions. Monitor site-specific conditions or disease and insect pressure.

INCLUDED MEASUREMENTS: *Temperature, Relative Humidity, Rainfall*

3220DR WatchDog Weather Station Data Recorder

3580 Sensor Station Data Recorder
Monitor the plant inputs that are important to you, perfect when multiple sensors of the same type are needed

INCLUDED MEASUREMENTS: *None included, ideal where multiple sensors of your own choice are needed*

3580DR WatchDog Sensor Station Data Recorder

3210 Temperature/RH Station Data Recorder
Prevent frost damage and monitor site-specific conditions for insect pressure

INCLUDED MEASUREMENTS: *Temperature, Relative Humidity*

3210DR WatchDog Temp/RH Station Data Recorder

3230 Plant Growth Station Data Recorder
Grow high quality, profitable plants by measuring Daily Light Integral (DLI), Vapor Pressure Deficit (VPD), Day/Night Temperature Difference (DIF) and more!

INCLUDED MEASUREMENTS: *Quantum (PAR) Light, Temperature, Relative Humidity (See Page 7 for model differences)*

3230DR WatchDog Plant Growth Data Recorder
3230DRP WatchDog Plant Growth Data Recorder Pro
3230DRA WatchDog Plant Growth Data Recorder Aspirated

2475 Plant Growth Station
Ideal for greenhouses - computes and displays Daily Light Integral (DLI), dew point and degree days. Live display of current light and cumulative light over the day. Computes and displays average day/night temperature differences (DIF) and vapor pressure deficit (VPD).

INCLUDED MEASUREMENTS: *Quantum (PAR) Light, Temperature, Relative Humidity, Dew Point*

3686WDS WatchDog Plant Growth Mini Station

Models 2400, 2425 and 2450 Mini Stations are available at www.specmeters.com

PRODUCT COMPARISON

	3550 ET Data Recorder	3250 ET Data Recorder	3540 Weather Data Recorder	3240 Weather Data Recorder	3220 Rain Data Recorder	3580 Sensor Data Recorder	3210 Temp/RH Data Recorder	3230 Plant Growth Station	2475 Plant Growth Station	Range	Accuracy
Air Temperature	Included		Included		Included	Optional	Included	Included	Included	-40°F to 257°F (-40°C to 125°C)	± 0.54°F (-40°F to 194°F)
Relative Humidity	Included		Included		Included	Optional	Included	Included	Included	0 to 100%	± 2% @ 77°F (25°C)
Rainfall	Included		Included		Included	Optional (external port)	Optional	Optional	Optional (external port)	0.01" (0.254mm) resolution	± 2% at <2" (5cm)/hour
Wind Speed	Included		Included		Optional	Optional	Optional	Optional	NA	0, 1 to 200mph (0, 1 to 322km/h)	± 2mph (± 3km/h) ± 5%
Wind Direction	Included		Included		Optional	Optional	Optional	Optional	NA	1°-359° 1° increments	±3°
Light Sensor	Solar Radiation Included		Optional (external port)		Optional (external port)	Optional	Optional (external port)	PAR Sensor Included	PAR Sensor Included	0 to 1500W/m^2 (0 to 3000µMol/m^{2}s)	±5%
Available External Sensor Ports	5	1	6	2	2	8	2	1	1		

1000 Series Micro Stations

Micro Stations offer a cost-effective way to record multiple environmental conditions
- Internal sensors can include temperature and humidity (radiation shield required)
- Up to 4 external sensor ports
- Up to 8 sensor values with the Model 1650 when using two WaterScout SMEC300 Soil Moisture/EC/Temperature Sensors
- LCD displays sensor readings and battery level
- Select measurement intervals from 1 to 60 minutes
- Log 10,584 (8,064 with SMEC300) intervals (220 days at 30 minute intervals)
- Water-resistant case (radiation shield or enclosure recommended for outdoor use)
- 12-month battery life (CR2450, included)

How is Data Accessed?
Requires SpecWare Basic or Pro
- **Direct Connect:** Download from the station to your PC
- **Data Shuttle (3679WD1):** Transport data from your station to your PC *(See Page 20)*

With Rainfall Bucket and Bird Guard

Leaf Wetness

Soil Moisture/EC/ Temperature

Air, Soil, Water Temperature

PRODUCTS

Model	Item	Internal Sensor	External Ports	Max Number of SMEC300 Sensors
1650	3688WD1	Temperature, Relative Humidity	4	2
1525	3687WD1	Temperature	4	2
1450	3684WD1	Temperature, Relative Humidity	2	1
1425	3683WD1	Temperature	3	1
1400	3685WD1	None (External Only)	4	2
1250	3682WD1	Temperature, Relative Humidity	None	0
1225	3681WD1	Temperature	1	0
1200	3680WD1	None (External Only)	2	1
1120	3554WD1	Rainfall	None	0
1115	3635WD1	Requires External Rainfall *(see website)*	1	0

Data-Logging Rain Gauge

High accuracy, low-maintenance tipping bucket rain collector
- Meets NWS guidelines with an 8" (20.5cm) diameter collector
- The included data logger can log up to 10,584 intervals
- Select intervals from 1 to 60 minutes [maximum 10.23" (26.0cm) per interval]
- Rain collector mounting bracket and hardware included
- Record rainfall in either metric (mm) or US (in) units
- Accuracy: ±2% at < 2" (5cm) per hour
- Requires SpecWare 10 Basic or Pro
- Includes Bird Guard to reduce maintenance

3554WD1 WatchDog 1120 Data Logging Rain Gauge

CONFIGURE AND DOWNLOAD USING DIRECT CONNECT TO YOUR PC

A-Series Data Loggers

The most affordable way to track environmental conditions for analysis
• Log 4,000 to 8,000 intervals in fail-safe EEPROM data memory
• Water-resistant case (IP65 for A150 and A110, IP54 for A125 and A130); A160 is for indoor use only and must be protected from moisture
• Removable soft caps keep ports clear of debris
• Includes CR2 battery, 12-month life (except A160, which requires AC power; international adapter included)

How is Data Accessed?

• LCD display confirms logger operation and displays last sensor reading
• Hook up A-Series Loggers to your computer with PC Connection cable
• Direct connect requires SpecWare Basic or Pro plus A-Series PC Cable (3661A)

A-SERIES DATA LOGGERS PRODUCTS

Model	Item	Internal Sensor	Intervals	Radiation Shield
A160	3611A	Air Temperature, Relative Humidity, CO_2	5,333	Indoor Use Only (No Shield Available)
A150	3612A	Air Temperature, Relative Humidity	5,333	Optional
A130	3610A	Air Temperature, External Leaf Wetness	4,000	Included
A125	3617A	Air Temperature, External Temperature	4,000	Recommended
A125	3617ARS	Air Temperature, External Temperature	4,001	Included
A110	3618A	Air Temperature	8,000	Optional
	3661A	WatchDog A-Series PC Connection Cable USB Port (*required to download data*)		
	3663A	Radiation Shield (*needed for outdoor use*)		

B-Series Data Loggers

Space efficient and inexpensive logging technology
• Ideal for shipping containers or situations where multiple areas need to be monitored
• Choose from temperature-only or temperature/humidity models
• Water resistant (IP56) stainless steel case
• Select measurement intervals from 1 to 120 minutes
• Log 2,000 to 8,000 intervals
• Integral non-replaceable battery

How is Data Accessed?

• Snap the B-Series Data Loggers into the Docking Station (3665K1) and connect it to your PC to see the data. (*Requires SpecWare Basic or Pro*)

B-SERIES DATA LOGGERS PRODUCTS

Model	Item	Internal Sensor	Intervals	LCD Display
B102	3621WD	Temperature, Relative Humidity	4,000	No

Temperature Range: -4°F to 185°F (-20°C to 85°C)
Temperature Accuracy: ±1.1°F from 5°F to 149°F (±0.6°C from -15°C to 65°C)
Humidity: 0 to 100%, ±5%

B101 8K	3620WD	Temperature	8,000	No

Temperature Range: -40°F to 185°F (-20°C to 85°C)
Temperature Accuracy: ±1.1°F from 5°F to 149°F (±0.6°C from -15°C to 65°C)

B100 2K	3619WD	Temperature	2,000	No

Temperature Range: -40°F to 185°F (-20°C to 85°C)
Temperature Accuracy: ±1.8°F from -22°F to 158°F (±1°C from -30°C to 70°C)

3655K1 WatchDog B Series Docking Station - USB Port (required to download data)

We recommend placing the Data Logger in a plastic bag prior to burying

WEATHER STATION COMPARISON

We have sensors for your measuring needs.

Compare all your options to pick the best system for you!

Item #	Model/Sensors Included	SpecConnect Compatible	LCD Display	Wireless	Evapotranspiration (ET)	Alarm Output-Ready	Air Temperature Sensor	Relative Humidity Sensor	Dew Point (Computed)	Wind Speed & Direction	Tipping Bucket Rain Collector	Solar Radiation Sensor	Available Sensor Ports	Quantum Light Sensor	Exterior Soil Temperature Sensor	Leaf Wetness Sensor	WaterScout Soil Moisture Sensor	WaterScout Soil Moisture/EC/Temperature Sensor	Digital Sensor Compatible	Radiation Shield (P=Passive or A=Aspirated)
							3672					3670i		3668S	3667	3666	6460	6470-6		
		STANDARD FEATURES											OPTIONAL SENSORS & ACCESSORIES							
3000 Series Stations																				
3550xx	3550 ET Station	✓		✓	✓		✓	✓	✓	✓	✓	✓	5	OPT	OPT	OPT	OPT	OPT	✓	P
3250xx	3250 ET Station	✓		✓	✓		✓	✓	✓	✓	✓	✓	1	OPT	OPT	OPT	OPT	OPT		P
3540xx	3540 Weather Station	✓		✓			✓	✓	✓	✓	✓	OPT	6	OPT	OPT	OPT	OPT	OPT	✓	P
3240xx	3240 Weather Station	✓		✓			✓	✓	✓	✓	✓	OPT	2	OPT	OPT	OPT	OPT	OPT		P
3220xx	3220 Rain Station	✓		✓			✓	✓	✓	OPT	✓	OPT	2	OPT	OPT	OPT	OPT	OPT		P
3210xx	3210 Frost Station (Temp/RH)	✓		✓			✓	✓	✓	OPT	OPT	OPT	2	OPT	OPT	OPT	OPT	OPT		P
3230xx	3230 Plant Growth Station	✓		✓			✓	✓	✓	OPT	OPT	OPT	1	✓	OPT	OPT	OPT	OPT		P
3230xxP	3230 Plant Growth Station Pro	✓		✓			✓	✓	✓	OPT	OPT	OPT	1	3688A	OPT	OPT	OPT	OPT		P
3230xxA	3230 Plant Growth Station Aspirated	✓		✓			✓	✓	✓	OPT	OPT	OPT	1	3668A	OPT	OPT	OPT	OPT		A
3580xx	3580 Sensor Station	✓		✓			OPT	OPT		OPT	OPT	OPT	8	OPT	OPT	OPT	OPT	OPT	✓	
2000 Series Mini Stations																				
3686WDS	2475 (Temp/RH/PAR + 1 Port)	✓	✓	OPT		✓	✓	✓	✓		OPT	OPT	1	✓	OPT	OPT	OPT	OPT		P
3684WD	2450 (Temp/RH + 3 Ports)	✓	✓	OPT		✓	✓	✓	✓		OPT	OPT	2	OPT	OPT	OPT	OPT	OPT		P
3683WD	2425 (Temp + 3 Ports)	✓	✓	OPT		✓	✓				OPT	OPT	3	OPT	OPT	OPT	OPT	OPT		P
3685WD	2400 (4 Ports)	✓	✓	OPT		✓					OPT	OPT	4	OPT	OPT	OPT	OPT	OPT		
3345WD2	2800 (8 Ports + OPT Rain)	✓	✓	OPT		✓					OPT	OPT	9	OPT	OPT	OPT	OPT	OPT		
Retriever & Pups Wireless Sensor Network																				
3550DU	3550 ET Pup Station	✓		✓	✓		✓	✓	✓	✓	✓	✓	5	OPT	OPT	OPT	OPT	OPT	✓	P
3250DU	3250 ET Pup Station	✓		✓	✓		✓	✓	✓	✓	✓	✓	1	OPT	OPT	OPT	OPT	OPT	✓	P
3540DU	3540 Weather Pup Station	✓		✓			✓	✓	✓	✓	✓	OPT	6	OPT	OPT	OPT	OPT	OPT	✓	P
3240DU	3240 Weather Pup Station	✓		✓			✓	✓	✓	✓	✓	OPT	2	OPT	OPT	OPT	OPT	OPT	✓	P
3220DU	3220 Rain Pup Station	✓		✓			✓	✓	✓		✓	OPT	2	OPT	OPT	✓	OPT	OPT	✓	P
3900PG	Plant Growth Pup Station	✓		✓			✓	✓	✓	OPT	OPT	OPT	2	✓	OPT	OPT	OPT	OPT	✓	A
3900	Sensor Pup	✓		✓			OPT	OPT		OPT	OPT	OPT	4	OPT	OPT	OPT	OPT	OPT	✓	P
3902	Repeater Pup	✓		✓									0							
1000 Series Micro Stations																				
3685SM14	Irrigation Station		✓										0				✓ (4)			
3684PAR1	Plant Growth Station		✓			✓	✓						1	✓	OPT	OPT	OPT	OPT		P
3688WD1	1650 (Temp/RH + 4 Ports)		✓			✓	✓			OPT	OPT		4	OPT	OPT	OPT	OPT	OPT		
3687WD1	1525 (Temp + 4 Ports)		✓			✓				OPT	OPT		4	OPT	OPT	OPT	OPT	OPT		
3684WD1	1450 (Temp/RH + 2 Ports)		✓			✓	✓			OPT	OPT		2	OPT	OPT	OPT	OPT	OPT		
3683WD1	1425 (Temp + 3 Ports)		✓			✓				OPT	OPT		3	OPT	OPT	OPT	OPT	OPT		
3685WD1	1400 (4 Ports)		✓							OPT	OPT		4	OPT	OPT	OPT	OPT	OPT		
3682WD1	1250 (Temp/RH)		✓			✓	✓						0							
3681WD1	1225 (Temp + 1 Port)		✓			✓				OPT	OPT		1	OPT	OPT	OPT	OPT			
3680WD1	1200 (2 Ports)		✓							OPT	OPT		2	OPT	OPT	OPT	OPT	OPT		
A-Series Loggers																				
3611A	A160 (Temp/RH/CO2)		✓			✓	✓						0						+CO$_2$	
3612A	A150 (Temp/RH)		✓			✓	✓						0							
3610A	A130 (Leaf Wetness/Temp)		✓			✓							0			✓				
3617A	A125 (Soil/Air Temp Station)		✓			✓							0		✓					
3617ARS	A125 (Soil/Air Temp Station)		✓			✓							0		✓					P
3618A	A110 (Temp)		✓			✓							0							
Sprayer Station																				
3349SSCH	Sprayer Station with Console		✓			✓	✓	✓	✓				0							

SpecWare *Software*

DOWNLOAD SPECWARE FROM OUR WEBSITE

SpecWare software can be downloaded directly from specmeters.com/software (activation required). Use it with WatchDog Weather Stations, Retrievers and Pups and our Data Loggers. It provides a permanent record of your data, and you can view data from multiple WatchDog products within the system.

SpecWare 10 Basic

- Easily download, analyze and produce basic reports from the weather data collected on your WatchDog Mini and Micro Stations and Data Loggers
- Gain back valuable time previously used to export data and perform calculations in spreadsheets
- Powerful analysis tools are easy to use
- Graph on-the-fly with an interactive graphing window
- Choose from 16 standard reports, including EFSA and NOAA
- SpecWare automatically assigns each WatchDog Data Logger Station to its own "logger location" directory, which is appended every time you download new data
- Find and use data easily with an open file management system - all data is stored in a monthly file, simplifying data sharing and exporting
- Import data files from other applications
- Export data in tab-separated text files to import into other applications, such as Excel
- International features include handling date, time and numbers with regional formatsm and choice of Metric or US measurements
- One purchase = one activation for one installation

SpecWare 10 Pro

- Every SpecWare 10 Basic feature, PLUS...
- Support for the WatchDog 3000 Series Stations, including the NEW 3500 Models and those that are part of a Retriever and Pups network, gathering data via USB thumb drive or direct connection
- Build, customize and save your most important reports
- Run evapotranspiration (ET) reports to effectively manage water use
- Add optional insect and disease models to forecast pest pressures and reduce pesticide costs; produce reports with graphs for each pest
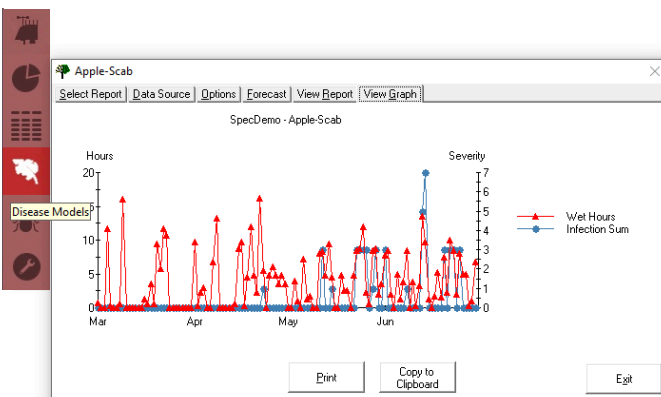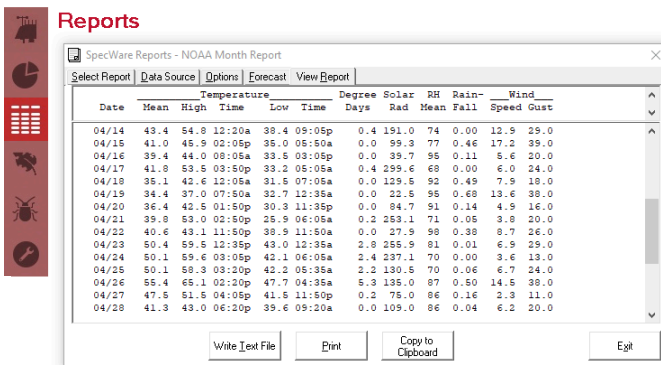
SpecWare Software
One time purchase

	SpecWare 10 Basic
3654BX	SpecWare 10 Basic Sofware *(USB Cable included)*
3654BXU	SpecWare 10 Basic Upgrade *(USB Cable not included)*
3654BXX	SpecWare 10 Basic Extra User License *(USB Cable included)*
3661U	USB to 3.5mm Stereo Plug Adapter
	SpecWare 10 Pro
3654PX	SpecWare 10 Pro Sofware
3654PXU	SpecWare 10 Pro Upgrade
3654PXX	SpecWare 10 Pro Extra User License
	Disease and Insect Forecast Model Packages
3656AP	SpecWare Apple/Pear Alert Package
3656CH	SpecWare Cherry Alert Package
3656GA	SpecWare Grape Alert Package
3656PO	SpecWare Potato Alert Package
3656TO	SpecWare Tomato Alert Package
3656TU	SpecWare Turf Alert Package

S P E C W A R E

WatchDog®

AVOID DRIFT COMPLAINTS

Don't let misapplication of herbicides cost you. Let our sprayer station with ultrasonic anemometer help you put pesticides where they belong and nowhere else.

Pesticide drift is increasingly important to commercial applicators. Accurate data helps pesticide applicators make important decisions regarding weather conditions that affect safety, drift and proper application. With the WatchDog Sprayer Station you can provide evidence of suitable conditions for pesticide application by logging your data. Mount the station directly on your equipment to monitor and log weather conditions on-the-go.

All-in-One Weather Station Measures:

- Wind Speed/Direction & Chill
- Air Temperature
- Barometric Pressure
- Humidity
- Dew Point
- Computes True Wind Speed

Additional Information

- Continuously log your weather parameters at a user-selectable rate or hit the snapshot button to capture current conditions at a specific moment
- Station uses an internal compass and GPS to adjust the wind sensor values by subtracting the vehicle speed and direction to compute the true values
- Handles adverse conditions with a UV-stabilized, compact housing that is fully waterproof and resistant to chemicals

Sprayer Station

3349SSCH WatchDog Sprayer Station with Console
- Buy as a package and save!
- See data on the display and/or download directly from console
- Requires SpecWare Mobile for WatchDog Sprayer Station

3349SSH WatchDog Sprayer Station
- Includes sensor unit with magnetic base, 21' (7m) cable with vehicle power and 9-pin serial connectors
- Integrates with Raven & AGCO controllers

3349CN WatchDog Sprayer Station Console
- Includes console with built-in data logger, USB-to-3.5mm stereo cable
- Download software directly from specmeters.com/software

3349H Replacement Humidity Sensor

3661U9 USB to 9-PinSerial Adapter

CHOOSE YOUR CONSOLE

WatchDog Sprayer Station Console

Raven Viper 4, ViperPro or Envizio Pro (not available through Spectrum)

AGCO Accu Terminal (not available through Spectrum)

2.75 in (7 cm)

12.75 in (33 cm)

WatchDog Sprayer Station

PRODUCT SPECIFICATIONS

Wind Resolution	
Direction:	1°
Speed:	0.1mph (0.2km/hr)
Wind Speed Range	0 to 90mph (0 to 145km/hr)
Wind Speed Accuracy	
<12mph (19km/h):	±1.1mph (1.7km/hr) or ±10%
>12mph (19km/h):	±2.3mph (3.7km/hr) or ±5%
Wind Direction Accuracy	
4 to 11mph (6 to 18km/h):	±5°
>12mph (19km/h):	±2°
Wind Accuracy Temperature Range	32°F to 131°F (0°C to 55°C)
Operating Temperature	-13°F to 131°F (-25°C to 55°C)
Temperature Accuracy	±2°F (±1.1°C) with wind above 4.6mph (7.4km/hr)
Relative Humidity Range	10% to 95%
Relative Humidity Accuracy	±5% with wind above 4.6mph (7.4km/hr)
Barometric Pressure Range	24in-Hg to 33 in-Hg (800hPa to 1100hPa)
Barometric Pressure Accuracy	±0.029in-Hg (±1hPa)
Power Supply Voltage	9-40VDC, Current: <90 mA@12VDC

WATCHDOG PORTABLE WIND SENSOR

NEW

WIND WatchDog®

AVOID DRIFT COMPLAINTS
Measure and Record
WIND SPEED & DIRECTION
when spraying pesticides

MEASURES
Wind Speed   Wind Direction
App Displays Local Weather Readings:
Temperature   Humidity   Barometer   DeltaT

PRODUCT SPECIFICATIONS

WIND SPEED	
Range	1-25m/s (2.24mph - 56mph)
Accuracy	±0.3m/s @ 10m/s (0.67mph @ 22.40mph)
WIND DIRECTION	
Range/Accuracy	0° to 359°; ±1°
ANEMOMETER DIMENSIONS	
Diameter/Height	1.69" (43mm); 1.85" (47mm)
Weight	2.8oz (78g)
Height with Phone Mount	5.6" (144mm)
Width with Phone Mount	3.43" to 5.28" (87mm to 134mm)
Phone Width Capacity	2.28" to 4.13" (58mm to 105mm)
Weight with Phone Mount	5.4oz (152g)
MISCELLANEOUS	
Sensors	4 Ultrasonic Transducers
Compatibility	WatchDog Wind App (_Free in Google Play Store and Apple App Store_)
Power	Rechargeable Battery, Qi Wireless Charger Included
Battery Run Time	150 Hours of Active Use
IP Code	IPX8

FEATURES & BENEFITS
- Ultrasonic bluetooth wind sensor
- NO moving parts
  - _Immediate and precise measurements_
  - _Portable design for spot measurements_
  - _Make better pesticide application decisions_
- Record data to create a permanent spray record
  - _Email records directly from the app_
  - _Choose a specific day or date range_
- Avoid negative impact from drift
  - _Improve pesticide coverage on targeted area_
  - _Ensure the safety of surrounding people, crops, livestock, wildlife and plants_
  - _Address legal issues with accurate, time stamped weather data_
- Demonstrate good stewardship
- Includes WatchDog Portable Wind Sensor, mounting bracket, wireless charger, charging stabilizer and wall plug
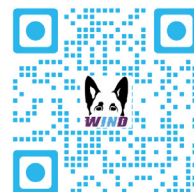
3348P - WatchDog Portable Wind Sensor

Record Log

USE THE FREE APP!
- Scan to download the WatchDog Wind app from your app store
- Follow the prompts to calibrate the compass on your phone
- Once calibrated, complete set up instructions and start recording data
- Email records directly from the app

LIGHTSCOUT®

Consistent Plant Quality Starts With Light
Why Measure Light?

Improve growth and quality of your plants. Shade cloths and hanging baskets reduce plant light more than you know!

Position sensors throughout your greenhouse to compare light levels and the effect those changes have on plant quality. You can also use multiple sensors simultaneously to compare light levels and the impact on turf health, quality and aesthetics.

Full Spectrum Quantum PAR Light Sensor
The full spectrum sensor can accurately measure light intensity across the full PAR spectrum – including from LED lights
- Integrates multiple optical detector elements to accurately measure light across the entire PAR spectrum, from all light sources - including narrowband LED
- Perfect for all artificial light installations, as well as locations supplementing natural light with LEDs
- Use with the WatchDog 2000 and 3000 Series Weather Stations, Pups, and the External Light Sensor Meter (Page 26)

3668A LightScout Full Spectrum Quantum (PAR) Light Sensor
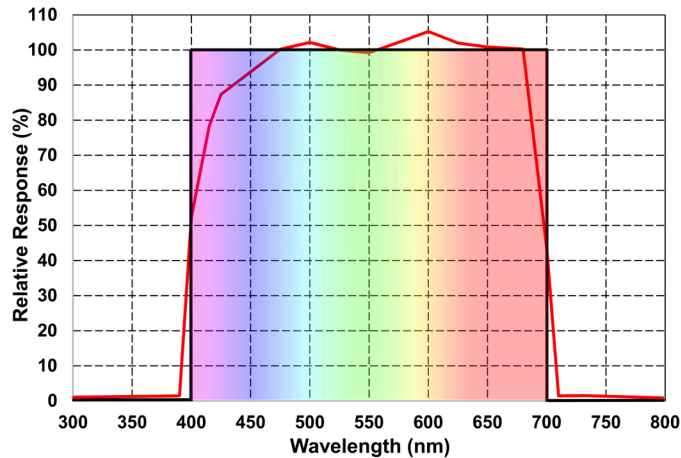
Quantum PAR/DLI Light Meter
Grow healthier, greener plants by measuring their precise light intake

Provides accurate PAR light readings from ANY light source
- Full sun to full shade indoors or outdoors
- Artificial light sources (LED, High Pressure Sodium, Metal Halide, Fluorescent, Halogen, etc)

Three modes of operation:
- Instant spot measurement mode for PAR light readings
- Scan mode for quickly averaging PAR over an area
- DLI mode shows Daily Light Intergral on the LCD *(no computer needed)*

Integral mounting plate for stand, stake, lanyard hanger hole and magnet mounts
1/4" - 20" threaded hole for mounting on camera tripods and stands
Includes sensor cover and soft-sided case

3415A LightScout Quantum PAR/DLI Light Meter

GENERALIZED PLANT RESPONSES TO DIFFERENT LIGHT LEVELS

Relative Light Level	DLI* - Daily Light Integral	Light Intensity** at Noon	Generalized Plant Growth Response
Very Low	2 to 5	100 to 200	Poor Quality
Low	5 to 10	200 to 400	Minimum Acceptable
Medium	10 to 20	400 to 800	Good Quality
High	20 to 30	800 to 1,200	Excellent Quality
Very High	30 to 60	1,200 to 2,000	Excellent Quality

* Moles
** Micromoles (µmol/m²·s)

Note: It is not possible to make a direct conversion between an instantaneous light measurement and the Daily Light Integral. Also, temperature is a key factor in plant quality and growth. Source: Hamrick, Debbie, ed. Ball Red Book, Batavia, IL: Ball Publishing, 2003

DLI 100 Light Meter

Light is one of the most important factors in plant and turf quality. The best way to quantify light for growing plants is to measure photosynthetically active radiation (PAR) light between 400 and 700 - the range that promotes photosynthesis. The daily light integral (DLI) measures the total amount of PAR within a 24-hour period.

For best results, place one meter in the sun, one in partial shade and one in full shade

- Affordable & simple, one button operation
- Meter runs for 24 hours to calculate DLI
- Real-time intensity levels are shown in $\mu mol \cdot m^{-2} \cdot s^{-1}$ every 4 seconds daily
- Battery included
- Greenhouse and Turf models available

3405G3 LightScout DLI 100 Light Meter
(Greenhouse, Set of 3)

3405G LightScout DLI 100 Light Meter
(Greenhouse, 1 Unit)

3405T3 LightScout DLI 100 Light Meter
(Turf, Set of 3)

3405T LightScout DLI 100 Light Meter
(Turf, 1 Unit)

Quantum/PAR Meters

Measure the light used for plant growth - PAR is a more valuable measurement than foot-candles, as it measures only the light used by plants for photosynthesis.

- Measures photosynthetically active radiation (PAR) from 400 to 700 nm; Range of 0 to 2,000 $\mu mol \cdot m^{-2} \cdot s^{-1}$
- Available in a variety of configurations for your convenience

3415F LightScout Quantum Meter

3415FSE LightScout Dual Solar/Electric Quantum Meter

3415SXSE LightScout Dual Solar/Electric Quantum Meter *(External Sensor)*

3415FQF LightScout Quantum and Foot-Candle Meter

7500 Soft-Sided Carrying Case

External Light Sensor Reader

- Plug in a sensor, choose it on the LCD and measure UV, Quantum Light, or Solar Radiation
- Reads any of Spectrum's external light sensors

3415FX LightScout External Light Sensor Reader
(Compatible light sensors sold separately)

3668A LightScout Full Spectrum PAR Sensor

3668S LightScout Quantum PAR Light Sensor

3668S6 LightScout Quantum Light 6 Sensor Bar

3668I3 LightScout Quantum Light 3 Sensor Bar

3670I LightScout Silicon Pyranometer Sensor *(Solar Radiation)*

3676I LightScout UV Sensor

Red/Far-Red Meter

Red/Far-Red light ratio helps plants determine proximity to each other, affecting how tall or full they grow

- Cost-effective Red/Far-Red measurement
- Displays the Red/Far-Red ratio on the LCD screen
- Press a button to display 660nm and 730nm readings
- Includes soft-sided case *(also available separately as Item 7500)*

3412 LightScout Red/Far-Red Meter

UV Meter

Handheld meter monitors critical UV radiation (250-400 nm)

- Determine UV filtering capacity of greenhouse shades and glass barriers
- Range is 0 to 200.0 $\mu mol \cdot m^{-2} \cdot s^{-1}$ (full sunlight)

3414F LightScout UV Meter

7500 Soft-Sided Carrying Case

Foot-Candle Meter

- Displays immediate light level in units of foot-candles
- An affordable light measurement solution, with precision photodiode with cosine correction

3413F LightScout Foot-Candle Meter

7500 Soft-Sided Carrying Case

SPAD METER

Research supports the correlation between SPAD measurements and the nitrogen in the plant. Support and defend the health of your plants.

SPAD 502 Plus Chlorophyll Meter (2900P)
Quantifies the health of your crops

- Instantly measures chlorophyll content or "greenness" of your plants on a scale of -9.9 to 199
- Non-invasive, non-destructive measurement
- Trend graph stores and displays up to 30 measurements
- Water resistant design (IPX4)
- Compare in-field SPAD readings to university guidelines
- Research shows a strong correlation between SPAD measurements and leaf Nitrogen content
- Available with or without a built-in data logger
- Includes hard carrying case and batteries

SPAD Data-Logging Model (2900PDL)

All the features of the 2900P *PLUS*:
- Connects to any GPS receiver that has a serial output option*
- Equipped with internal data logger and RS-232 port
- Records 4,096 measurements (1,488 with added GPS/DGPS option)
- Configure and download meter with FieldScout software (included)**

 *GPS interface requires two cables. The GPS/DGPS cable (Item 2950CV5) is available from Spectrum. A PC serial interface cable supplied by the manufacturer of the GPS receiver is also required.

** PC cable connects to a computer USB port. See our website for other cable connection options. Georeferenced data can be uploaded to SpecConnect for mapping.

**2900P Minolta SPAD 502 Plus Chlorophyll Meter
        Basic version, no Data Logger**

**2900PDL Minolta SPAD 502DL Plus Chlorophyll Meter -
        with RS-232 Data Port and Built-In Data Logger
        (includes software and USB PC cable)**

2950CV5 GPS/DGPS Cable

PRODUCT SPECIFICATIONS

Optical Density Difference at two wavelengths: 650nm and 940nm

Measurement Area: 2mm x 3mm (Approximately 3/32" x 1/8")

Light Source: 2 LEDs

Receptor: Silicon Photodiode

Power Source: 2 AA alkaline batteries (1.5V)

Repeatability: Within ±0.3 SPAD unit

SPAD Value: Index of relative chlorophyll content; -9.9 to 199

FIELDSCOUT®

CM 1000 Chlorophyll Meter

- "Point-and-shoot" technology to instantly measure red (700nm) and NIR (840m)
- Laser guides outline the edges of the measured sample area
- Calculates and displays a running average for multiple readings
- Connects to any GPS receiver that has a serial output option*
- Internal data logger/RS-232 port (requires software); records 3,250 measurements (1,350 with GPS/DGPS)
- Configure and download meter with FieldScout software**
- Includes hard carrying case and batteries

2950 FieldScout CM 1000 Chlorophyll Meter

2950CV5 GPS/DGPS Cable

CM 1000 NDVI Meter

- "Point-and-shoot" technology to instantly measure red (660 nm) and near infrared (840 nm) spectral bands
- Detects stress earlier than visual monitoring
- Computes Normalized Difference Vegetative Index (NDVI)
- Laser guides outline the edges of the measured sample area
- Calculates and displays a running average for multiple readings
- Connects to any GPS receiver that has a serial output option*
- Equipped with internal data logger and RS-232 port
- Records 3,250 measurements (1,350 with GPS/DGPS)
- Configure and download meter with FieldScout software (free download from specmeters.com)**
- Includes hard carrying case and batteries

2953 FieldScout CM 1000 NDVI Meter

2950CV5 GPS/DGPS Cable

TCM 500 NDVI Turf Color Meter

- Measures reflected light from approximately a 3" (7.6 cm) diameter section of turfgrass
- Uses an internal light source to negate the effect of sunny vs. cloudy conditions
- Measures reflectance in the red (660 nm) and near infrared (850 nm) spectral bands
- Displays result as NDVI, percent reflectance, or as a user-adjustable grass index from 1 to 9
- Connects to any GPS receiver that has a serial output option*
- Internal data logger and RS-232 port; records 3,250 measurements (1,350 with added GPS/DGPS)
- Configure and download meter with FieldScout software (free download from specmeters.com)**
- Includes hard carrying case, batteries, and TCM 500 T-Handle (Item 2975H)
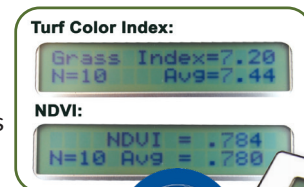
Turf Color Index:
Grass Index=7.20
N=10   Avg=7.44

NDVI:
NDVI = .784
N=10 Avg = .780

*GPS interface requires two cables. The GPS/DGPS cable (Item 2950CV5) is available from Spectrum. A PC serial interface cablesupplied by the manufacturer of the GPS receiver is also required.

**PC cable connects to a computer USB port. See our website for other cable connection options. Georeferenced data can be uploaded to SpecConnect for mapping.

2975NDVI FieldScout TCM 500 NDVI Turf Color Meter

2950CV5 GPS/DGPS Cable

PRODUCT SPECIFICATIONS

Measurement System: Reflectance of red (660nm) and NIR (850nm) light

Measurement Area: Approx. 3.0" (7.6cm)

Measurement Units: Percent reflectance (0 to 99.9%) of Red and NIR
NDVI (0 to 1.000); Grass Index (1.00 to 9.00)

Power Source: 1 9V alkaline battery (included); approx. 3,000 measurements

Repeatability: ± 5% of measurement

Multi-Parameter U-50 Series Meters

Simultaneously monitor, collect and store up to 11 water quality parameters with these high-performance meters. Measured parameters include pH, ORP, dissolved oxygen, salinity, TDS, seawater specific gravity, temperature, turbidity and water depth. The waterproof control unit is designed to be both rugged and easy to operate, making it a perfect match for fieldwork – ideal for sampling rivers, groundwater, wells, lakes, runoff/drainage and a myriad of other ecological and agricultural applications. Refer to the chart below to help decide which model best fits your needs.

Control Unit Features:
- Easy to read, backlit display
- Display up to 11 parameters simultaneously
- Auto-calibration feature for pH, dissolved oxygen, turbidity and depth provides hassle-free calibration
- One-hand operation
- Quick-connect connector (cable to control unit)
- Shock resistant cover

Sensor Probe Unit Features:
- Ultra-sensitive turbidity sensor
- Minimum dissolved oxygen sensor maintenance with screw-on type membrane cap
- Chemical resistant construction materials
- Field replaceable sensors

Item 2195-2   U51-2 Meter with 2m Cable
Item 2195-10   U51-10 Meter with 10m Cable
Item 2196-2   U52-2 Meter with 2m Cable
Item 2196-10   U52-10 Meter with 10m Cable
Item 2196-30   U52-30 Meter with 30m Cable
Item 2197-2   U52G-2 Meter with 2m Cable
Item 2197-10   U52G-10 Meter with 10m Cable
Item 2197-30   U52G-30 Meter with 30m Cable
Item 2198-2   U53-2 Meter with 2m Cable
Item 2198-10   U53-10 Meter with 10m Cable
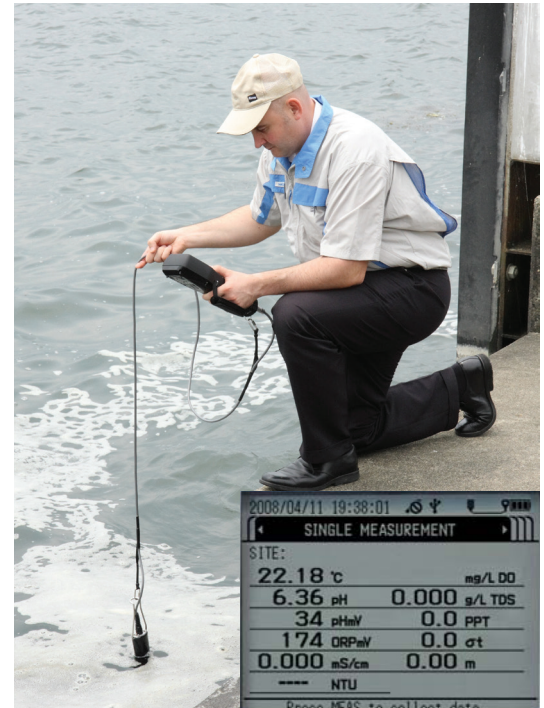
Water quality monitor displays 11 parameters simultaneously

U-50 SERIES COMPARISON	U-51	U-52	U52G	U-53U	53G
pH	✔	✔	✔	✔	✔
ORP (Oxidation Reduction Potential)	✔	✔	✔	✔	✔
Dissolved Oxygen	✔	✔	✔	✔	✔
Conductivity	✔	✔	✔	✔	✔
Salinity	✔	✔	✔	✔	✔
TDS (Total Dissolved Solids)	✔	✔	✔	✔	✔
Seawater Specific Gravity	✔	✔	✔	✔	✔
Temperature	✔	✔	✔	✔	✔
Turbidity (LED)	✔	✔			
Turbidity (Tungsten lamp)				✔	✔
Water Depth			✔	✔	✔
GPS			✔		✔

FieldScout Mobile App

Data at your fingertips! We've made it easier for you to send data from the field to your smartphone.

Basic Features

Free Mobile App download from Apple App Store or Android Google Play

SCAN TO DOWNLOAD

Basic App Capabilities:
- Hands-free data collection
- Visualize in-field, real time readings on a smartphone or tablet
- Color coded to represent a scale of moisture, EC, surface temperature or turf firmness
- E-mail relevant information to communicate results to others

Pro Features

Collect data, evaluate trends, log and analyze multiple data points. Wireless data can be sent via Bluetooth to an IOS or Android device and saved to the Cloud. Pull together soil moisture and EC data from your TDR meter and firmness data from your TruFirm to fine-tune agronomic and cultural practices for specific greens or other surfaces.

FieldScout Pro Mode requires purchase of 1-year SpecConnect FieldScout subscription.

Pro App Capabilities:
- Hands-free data collection
- Google Maps dynamic satellite image shows readings data overlaid on your property on mobile device and web portal
- Freeform Mode plots a point for each reading, and stores its data independently
- Automatic wireless upload to SpecConnect for further analysis from your personal web portal
- SpecConnect provides complete data overview at once, overlaid on a satellite map
- Color Gradient Mapping of data points within custom selected areas or groupings
- Map locations of sprinkler heads, pin locations and more

FieldScout Mobile Compatible Items

- TDR 350 Soil Moisture Meter
- TDR 300 Soil Moisture Meter
  (with optional Bluetooth device)
- TDR 150 Soil Moisture Meter
  (with optional GPS/Bluetooth upgrade)
- TruFirm Turf Firmness Meter
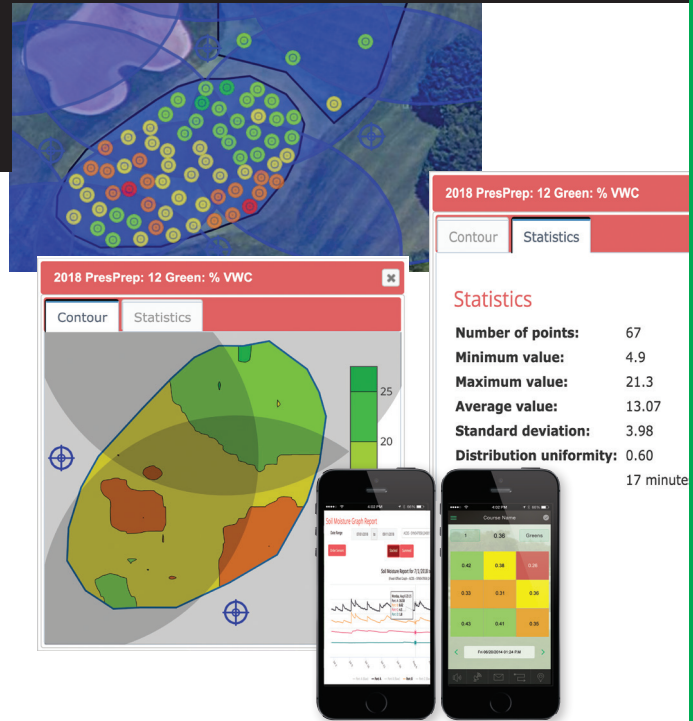
FieldScout Mobile

	Basic	Pro
Basic Grid Map	✔	✔
Change Number of Grid Zones	✔	✔
Customizable Google Map Image		✔
Saves the Average Measurement by Zone	✔	✔
Email the Map/Results View	✔	✔
Freeform Notes		✔
Freeform Mode		✔
Guided Mode (Auto-Advancing through Zones)		✔
SpecConnect Data Sharing		✔
Auto-Upload to SpecConnect		✔
Add User Note or Comment to Individual Reading or Zone		✔
Irrigation/Soil Moisture Audit		✔

FieldScout Mobile App - FREE TO DOWNLOAD		
3035A	SpecConnect FieldScout Pro Subscription (1-year)	1-3 Devices*
3035B	SpecConnect FieldScout Pro Subscription (1-year)	4-7 Devices*
3035C	SpecConnect FieldScout Pro Subscription (1-year)	8+ Devices*

* "Devices" refers to the number of FieldScout TDR or TruFirm Devices that can be connected to the app per subscription

FIELDSCOUT®

TDR350

Backed with proven time-domain measurement technology, the TDR 350 accurately measures soil moisture across a full range of soil conditions. An ergonomic design and built-in display provides quick and easy measurements for water management.

What Does it Measure?
Soil Moisture (Volumetric Water Content %), salts (electrical conductivity) and surface temperature, plus optional Infrared Temperature sensor

Common Applications
- Reliable portable meter for instant, accurate, actionable root zone moisture and soil EC readings average of rod length
- Irrigation scheduling, syringing practices and soil flushes
- Track and trend data from day to day, month to month and season to season to optimize turf Health and Conditioning

Features & Benefits
- Backlit Display - Easy to see on early mornings and bright sunny days
- Easy to Read Layout & Large Digits – clearly view readings, settings and icons
- Integrated Bluetooth & GPS - greater accuracy with onboard components
- Internal Data Logger - records approximately 50,000 measurements with GPS coordinates
- Optional TDR 300 Mode
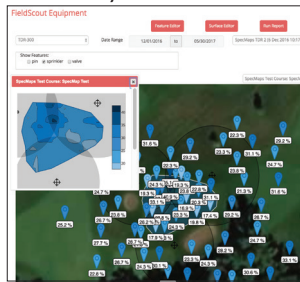
How Do You Access The Data?
- Manual – download the data with a USB flash drive, no special software or cable required
- Hands free – instantly view data on your smartphone or tablet via FieldScout Mobile App
- Cloud – SpecConnect FieldScout Pro subscription automatically uploads data to your personal web portal to view enhanced mapping and reporting features

SpecConnect **Compatible**

TDR250

The TDR 250 offers the same proven time-domain measurement technology as the other TDR meters, but with 20% less investment. The TDR 250 is a simplified portable soil-moisture meter that captures measurements in the root zone.

What Does it Measure?
Soil Moisture (Volumetric Water Content %)

Common Applications
- Reliable portable meter for instant, accurate and actionable root zone moisture readings
- Irrigation scheduling, syringing practices and soil flushes
- Ideal for daily-fee/municipal golf courses, sports turf fields and row crop farmers

Features & Benefits
- Displays VWC% (with running average)
- Operates in TDR 300 mode or salinity corrected (TDR 350) mode
- Soil measurements in less than a second
- Internal data logging up to 124,000 measurements
- USB port for a flash drive data download
- High-contrast display with backlight for easy viewing
- Interchangeable soil probes (varying options) - sold separately

SMARTIRRIGATION:
Maximize Irrigation Audits with TDR

PRODUCT COMPARISON

FEATURES	TDR150	TDR250	TDR350
Measure Volumetric Water Content	✔	✔	✔
Displays EC and Surface Temperature	✔	NA	✔
Interchangeable Soil Probes	✔	✔	✔
Backlit Display	✔	✔	✔
T-Handle	NA	✔	Telescoping
Infrared Temperature Sensor	Optional	NA	Optional
GPS/GNSS + Bluetooth	Optional	NA	✔
Carrying Case	✔	Optional	✔
FieldScout Mobile/SpecConnect Capability	Optional	NA	✔

TDR150

An affordable alternative to the TDR 350, the TDR 150 is a compact meter that allows you to obtain readings on-the-go. Ideal for measuring containers on benches, variable rod length options provide soil moisture measurements for your ideal root depth.

What Does it Measure?

Soil moisture, (Volumetric Water Content %), salts (electrical conductivity) and temperature (surface thermistor)

Features & Benefits

- Backlit Display – Easy to see on early mornings and bright sunny days
- Easy to Read Layout & Large Digits – clearly view readings, settings and icons
- Optional Bluetooth & GPS – greater accuracy with on-board components
- Internal Data Logger – Records approximately 50,000 measurements with GPS coordinates

How Do You Access The Data?

- Manual – download the data with a USB flash drive, no special software or cable required
- With optional GPS and Bluetooth upgrade
- Hands free – instantly view data on your smartphone or tablet via FieldScout Mobile App
- Cloud – SpecConnect FieldScout Pro subscription automatically uploads data to your personal web portal to view enhanced mapping and reporting features
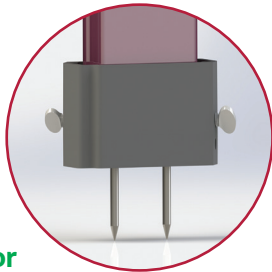
TDR Rods

Multiple length options for varying root zones.

TDR Spacer

- For use in TDR 300 Mode
- Using 1.5" (3.9cm) rods, easily measure 0.5" and 1" depths
- Easily attach and detach from any FieldScout TDR meter

Infrared Temperature Sensor

- Predict turf wilt with higher accuracy
- Correct a moisture deficit earlier and reduce heat stress
- Quickly and accurately measure surface temperatures
- Use IR temperature real-time - instantaneous readings
- Easy installation with our FieldScout TDR 350 and TDR 150

PRODUCTS

TDR Soil Moisture Meters	
6435	TDR350 Soil Moisture Meter with Carrying Case *(Rods required, but sold separately)*
6250	TDR250 Soil Moisture Meter *(Rods required, but sold separately)* *(Carrying Case sold separately)*
6445	TDR150 Soil Moisture Meter with Carrying Case *(Rods required, but sold separately)*
6430CASE	TDR 250/350 Carrying Case
TDR Rods	
6428FS4	Two 1.5" (3.8cm) Rods
6429FS4	Two 3" (7.6cm) Rods
6431FS4	Two 4.8" (12cm) Rods
6432FS4	Two 8" (20cm) Rods
6430PH	Pilot Hole Maker for TDR Meters *(Includes Two 3" (7.5cm) Rods)*
TDR Spacer	
6435SP	Rod Spacer
Infrared Temperature Sensor	
6435TS	Infrared Temperature Sensor for TDR350
6445TS	Infrared Temperature Sensor for TDR150

PRODUCT SPECIFICATIONS

SPECIFICATIONS FOR TDR350/150 SOIL MOISTURE METERS
VWC Range: 0% to Saturation, Resolution: 0.1%, Accuracy: ±3.0% VWC
EC Range: 0 to 5mS/cm, Resolution: 0.01mS/cm, Accuracy: ±0.1mS/cm
Temperature Range: -22°F to 140°F (-30°C to 60°C), Resolution: 0.1°, Accuracy: ±1.8°F (1°C)
IR Temperature Range: 32°F to 140°F (0°C to 60°C), Resolution: 0.2°F (0.1°C), Accuracy: ±0.2°F (0.1°C)
SPECIFICATIONS FOR TDR250 SOIL MOISTURE METER
VWC Range: 0% to Saturation, Resolution: 0.1%, Accuracy: ±3.0% VWC

WatchDog Irrigation Stations with WaterScout and Watermark Sensors

- Affordably monitor, compare and evaluate soil moisture levels from two, three, or four user-defined soil depths.
- Includes WatchDog Station and WaterScout Sensors with 20' (6m) cables - save money when purchased as a system
- Micro Stations also include the Protective Sliding Enclosure
- Watermark Stations include Watermark Soil Moisture Sensors with 11' (3.3m) cables

- Add soil moisture sensors to your WatchDog Pup network and see your data on SpecConnect.net
- Add a WaterScout SMEC 300 Soil Moisture/EC/Temp Sensor (*Item 6470-20*) and monitor soil temperature and EC levels
- Requires SpecConnect, SpecWare Basic or Pro software

Watermark Soil Moisture Sensor
Economical way to measure soil moisture tension

- Works with FieldScout Soil Sensor Reader and WatchDog Weather Stations
- Reads moisture tension from 0 (saturated) to 200 (dry) centibars

6450 Watermark Sensor *(with 5' (1.5m) cable)*

6450FSADPT Watermark Adapter for Soil Sensor Reader

6450WD Watermark Sensor for WatchDog Stations & Pups *(with 11' (3.3m) cable)*

**6450WD20 Watermark Sensor for WatchDog Stations & Pups** *(with 25' (7.6m) cable)*

6450AH Watermark Adapter for WatchDog Stations & Pups

PRODUCTS

Model	2 *WaterScout* SM100 Soil Moisture Sensors	3 *WaterScout* SM100 Soil Moisture Sensors	4 *WaterScout* SM100 Soil Moisture Sensors	3 *Watermark* Soil Moisture Sensors	4 *Watermark* Soil Moisture Sensors
Model 1200 Micro Station	3680SM12	NA	NA	NA	NA
Model 1400 Micro Station	3685SM12	3685SM13	3685SM14	3685WM13	3685WM14
Sensor Pup Irrigation Station	3900SM12	3900SM13	3900SM14	NA	NA

3680SM12 WatchDog Sensor Pup shown with 2 WaterScout SM 100 Sensors

3685SM13 WatchDog 1000 Series Micro Station with Sliding Enclosure and 3 WaterScout SM 100 Sensors

2 DEPTHS

3 DEPTHS
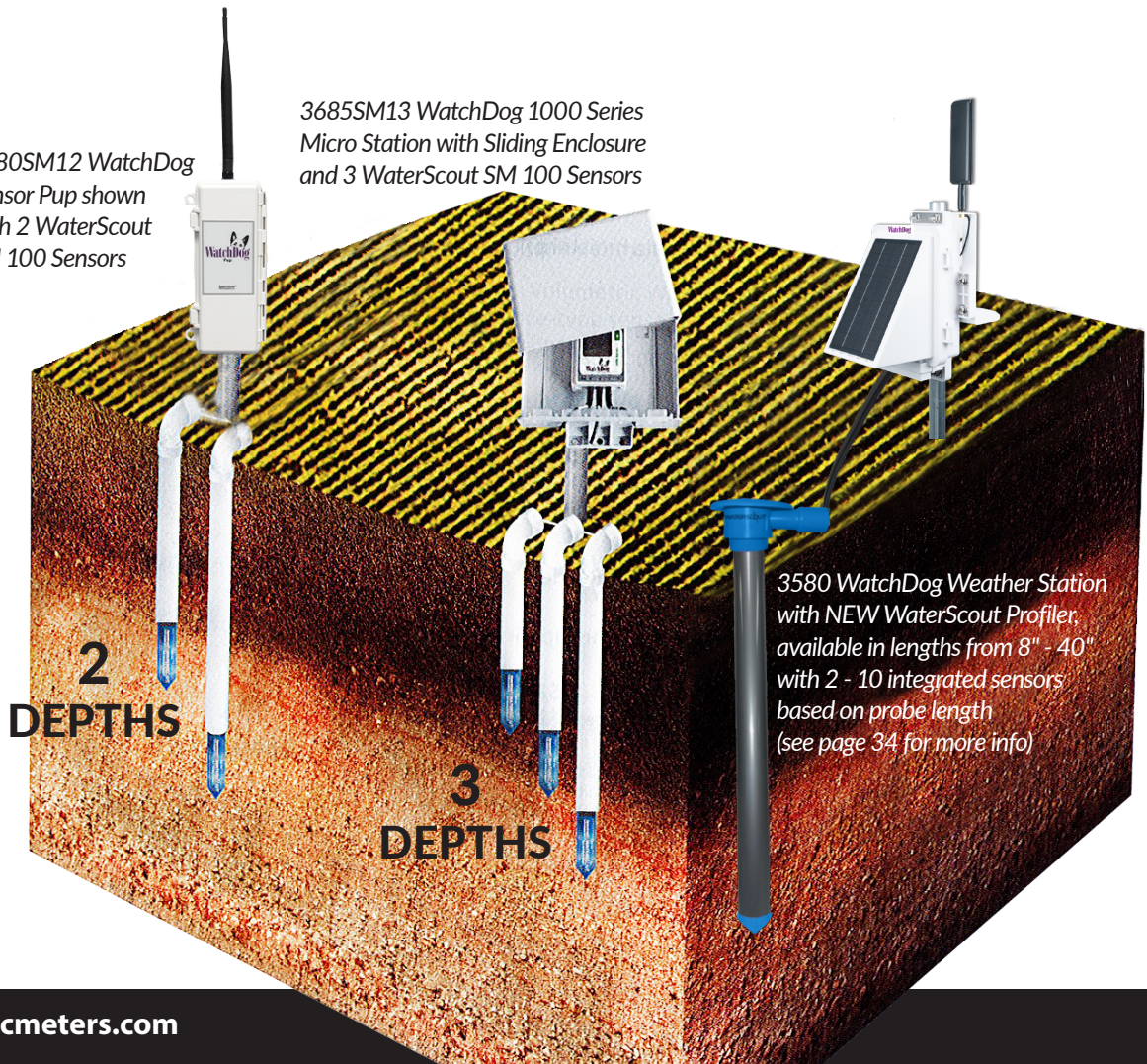
3580 WatchDog Weather Station with NEW WaterScout Profiler, available in lengths from 8" - 40" with 2 - 10 integrated sensors based on probe length (see page 34 for more info)

SM100 SOIL MOISTURE SENSOR

Place at multiple depths to help determine both when and how much to water.

- Measures Volumetric Water Content (VWC%) of soil
- Capacitance-type sensor responds immediately to changes in soil moisture content for better irrigation decisions
    - Calibrated for mineral soils or soil-less media
    - Install permanently or use to take spot measurements
    - Can be read with the FieldScout Soil Sensor Reader, WatchDog 3000, 2000, 1000 Series Stations and Pups

6460 WaterScout SM 100 Sensor - 6' (1.8m)
6460-20 WaterScout SM 100 Sensor - 20' (6m)

PRODUCT SPECIFICATIONS

	WaterScout SM100	WaterScout SMEC300
Accuracy	3% VWC @ EC<8mS/cm	VWC: 3%, EC: ±2% Temp: ±1°F (0.6°C)
Range	0% VWC to saturation	VWC: 0% VWC to saturation EC: 0 to 10mS/cm
Temperature	NA	33°F - 175°F (0.5°C - 80°C)
Resolution	0.1% VWC	VWC: 0.1%, EC: 0.01mS/cm Temp: 0.1°F (0.1°C)
Cable Length	6' (1.8m) and 20' (6m) standard Extendable up to 50 (15m)	6' (1.8m) and 20' (6m) standard Extendable up to 50 (15m)
Power Requirements	3V to 5V @ 6mA to 10mA	3V @ 6mA to 10mA
Output	Analog voltage 0.5V - 1.5V for a 3V excitation *(ratiometric for other excitation voltages)*	Analog Voltage Time Division Multiplexed
Sensing Area	2.4" x 0.8" (2.4cm x 2cm)	2.25" x 0.75" (5.7cm x 2cm)

SMEC300 SOIL MOISTURE/EC/ TEMPERATURE SENSOR

Identify situations where soil salinity is an issue or where certain moisture and temperature conditions facilitate soil-borne diseases

- Capacitance-type soil moisture sensor
- Carbon ink electrodes provide large measuring surface for electrical conductivity (EC)
- Can be read with the FieldScout Soil Sensor Reader, WatchDog 3000, 2000, 1000 Series Stations, and Pups
- Recommended placement of sensors is 10 feet separation to prevent EC interference when in the same medium
- WaterScout Calibration Device required unless using Soil Sensor Reader

6470-6 WaterScout SMEC 300 Sensor - 6' (1.8m)
6470-20 WaterScout SMEC 300 Sensor - 20' (6m)
6470CAL3V WaterScout Calibration Device
2251 Conductivity Standard, 1.41mS/cm, 250mL

Soil Sensor Reader
Spot-check WaterScout SM100 and SMEC300 sensors in the field

- Reads Watermark sensors (requires separate adapter)
- Includes soft-sided case (also available separately)

Shown measuring in soil-less media mode to gather immediate data.

6466 FieldScout Soil Sensor Reader

6450FSADPT Watermark Adapter for Soil Sensor Reader

NEW

COMING SOON! WATERSCOUT® Profiler

The WaterScout Profiler will be released in the first half of 2023
Please check our website for updates or email marketing@specmeters.com to be added to our pre-launch communication if you have an immediate interest in this product.

Imagine one probe with ALL the sensors you need already integrated!

Our Profiler will offer a variety of probe length and each length includes a designated number of sensors. Each sensor measures both temperature and soil moisture. No need to purchase any additional sensors if those are the only measurements you are intersted in capturing. The Profiler connects directly to one of our NEW 3500 Model Weather Stations, so all your information is available through the WatchDog App or can be viewed via SpecConnect.

PRODUCTS

Probe Length	Number Sesnsors	Item Number	SENSOR DEPTH LOCATION PER MODEL									
			4" (100mm)	8" (200mm)	12" (300mm)	16" (400mm)	20" (500mm)	24" (600mm)	28" (700mm)	32" (800m)	36" (900mm)	40" (1000mm)
8" (200mm)	2	6022	x	x								
12" (300mm)	3	6033	x	x	x							
16" (400mm)	4	6044	x	x	x	x						
24" (600mm)	6	6066	x	x	x	x	x	x				
32" (800mm)	4	6048		x		x		x		x		
32" (800mm)	6	6068	x	x	x	x		x		x		
40" (1000mm)	6	6061	x	x		x		x		x		x
40" (1000mm)	10	6011	x	x	x	x	x	x	x	x	x	x

Price includes SDI-12 to RS-232 Converter

ECONOMY SOIL MOISTURE TESTER

Analog soil moisture meter measures any type of soil with just one calibration.

- Resistance-type sensor located at the tip of the shaft
- Provides instant results ranging from 0 (dry) to 10 (saturated)
- 3-month warranty

6400 9" (22cm) Soil Moisture Tester
6405 24" (60cm) Soil Moisture Tester

IRROMETER TENSIOMETERS

Schedule irrigation based on how hard plant roots are working to draw water from the soil

- "SR" models (Items 6419 through 6423) are for general use with field or tree crops
- Low Tension (LT) models are for coarse soils or soil-less media (see www.specmeters.com)
- Portable models for specialized applications (see www.specmeters.com)
- Pressure gauge has a quarter inch pipe thread
- Service kit required (Item 6425)

6425 Service Kit - Required
6419 SR Model   6" (15cm) Depth
6420 SR Model 12" (30cm) Depth
6421 SR Model 18" (45cm) Depth
6422 SR Model 24" (60cm) Depth
6423 SR Model 36" (90cm) Depth
**9917 Replacement Tip for SR Models**

DIRECT SOIL EC METER
Instant and accurate direct EC and temperature measurements

- Professional-grade meter - Patented
- No need to prepare samples - simply sample through the profile
- Patented paired sensor tip provides maximum soil-sensor contact and higher accuracy
- Sample directly in plug trays, pots, containers, solutions, or ground soils
- 0 to 19.9mS/cm (Accuracy ±1%, Resolution 0.01mS/cm)
- Automatic temperature compensation, long lasting and waterproof
- Includes battery and EC calibration standard

Exclusive Patented Paired Sensor
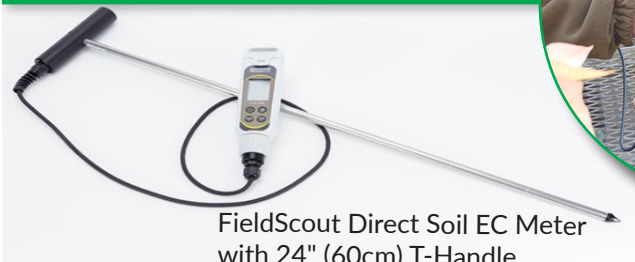
FieldScout Direct Soil EC Meter with 24" (60cm) T-Handle

PRODUCTS

DIRECT SOIL EC METER WITH 8" PROBE OPTION	
2266FS	FieldScout Direct Soil EC Meter with 8" Probe *(Includes carrying case and 2.76 Standard)*
2266PROBE	FieldScout EC 8" Replacement Probe
2251	Conductivity Standard, 1.41mS/cm, 250mL

DIRECT SOIL EC METER WITH 24" PROBE OPTION	
2266FSTP	FieldScout Direct Soil EC Meter with 24" T-Handle Probe and Replaceable Tip *(Includes carrying case and 2.76 Standard)*
2266FST24P	FieldScout T-Handle EC 24" Probe with Replaceable Tip
2266	Replaceable Tip for T-Handle EC Probe
2251	Conductivity Standard, 1.41mS/cm, 250mL

FIELDSCOUT TruFirm®
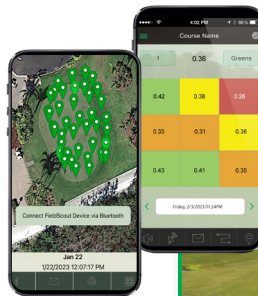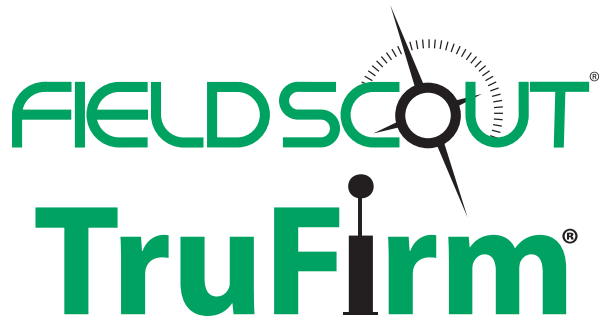
The FieldScout TruFirm offers a quick, easy and affordable method to measure the firmness of turf, bunker sands and other playing surfaces. Data acquired from the device allows turf management professionals to measure the relationship between the compaction of the soil and the moisture level to quantify safety and performance of playing conditions.

What Does it Measure?
Surface Firmness/Hardness (depth of impact in inches)

Common Applications
- All-in-one portable meter for evaluating impacts of cultural practices, play and environmental conditions on putting greens and other athletic surfaces
- Golf course greens, approaches, bunker sands and fairway landing areas for achievement of optimal surface performance and consistency
- Natural and artificial turf playing surfaces, infield dirt, turf and clay tennis courts, cricket pitches, bowling greens, racing tracks, etc.
- Track and trend data over time to better understand effects of turf inputs and optimize conditioning, playability and safety

Features & Benefits
- Built-in Display – immediate digital results on a conveniently located screen
- Easy to Use – simply raise and drop the hammer in one motion
- Objective Values – analyze and compare impact of environment and maintenance inputs on play
- Versatile Tool – perfect for golf courses and sports fields at schools, parks, etc.
- Self-Contained – one complete unit, no small pieces to keep track of or lose
- Very Affordable – designed to make measurement possible for every facility
- Bluetooth – wireless data collection with the FieldScout Mobile App and add satellite mapping with automatic cloud upload with SpecConnect FieldScout Pro
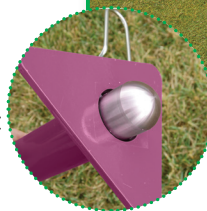
How Do You Access The Data?
- Hands free – instantly view data on your smartphone or tablet via FieldScout Mobile App
- Cloud – SpecConnect FieldScout Pro subscription automatically uploads data to your personal web portal to view enhanced mapping and reporting features

6490S - FieldScout TruFirm Turf Firmness Meter

PRODUCT SPECIFICATIONS

|	
Range	0.1" to 1.5" (2.54mm to 38.1mm)
Resolution	0.01" at 1" to 1.5" (0.25mm at 25.3mm to 38.1mm)
Diameter of Hammer	1.68" (4.45cm)
Height	27" (69cm)
Weight	4.3lb (1.95kg)
Measurment Units	Depth of Travel (inches)
Power	2AA Batteries (included)

FieldScout SC900

Help make decisions regarding areas of the field that require tillage, changes to crop rotation and planting of cover crops

- Includes 1/2" and 3/4" in cone tip
- Takes compaction readings every inch from 0" to 18" (45cm)
- Exclusive ultrasonic depth sensor captures readings in 1" (2.5cm) increments
- Penetration resistance measured by internal load cell
- Compaction data is displayed in PSI or kPa (1psi = 6.9kPa)
- Connects to any GPS receiver that has a serial output option*
- Equipped with internal data logger and RS-232 port
- Configure and download meter with FieldScout software (included)**
- Upload your data to SpecConnect for maps of compaction by depth, or depth to hard pan layer
- Includes USB cable, carrying case and depth target

GPS interface requires two cables: GPS/DGPS cable (item 2950CV5), available from Spectrum and the PC serial interface cable supplied by the manufacturer of the GPS receiver

**PC cable connects to a computer USB port, see our website for other cable connection options*
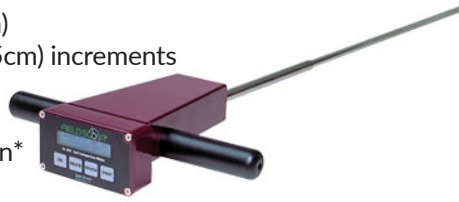
PRODUCT SPECIFICATIONS

Measurement Units	Cone Index (PSI or kPa)
Resolution	1" (2.5cm), 5PSI (35kPa)
Accuracy	±0.5" (1.25cm) Depth, ±15PSI (103kPa) Pressure
Range	0 to 18" (0 to 45 m), 0 to 1,000PSI (0 to 7,000kPa)
Battery/Life	4 AAA alkaline batteries; approximately 12-month life
Data Logger Capacity	772 profiles without GPS, 579 profiles with GPS

Soil Compaction Tester

Economical way to measure soil compaction with analog read out

- Large and small tip included with convenient storage in tester housing
- 24 in stainless steel rod with adjustable shock collar to prevent damage to the gauge during transport or storage
- Easy to read, color-coded, stainless steel dial that is liquid filled to reduce shock
- Durable molded housing with rubber grip handles
- Penetration Depth: Up to 24" (60cm) in 3" (7.6cm) increments
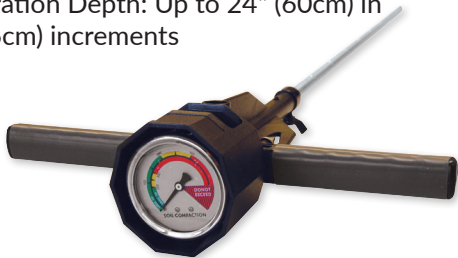
PRODUCTS

SC900 SOIL COMPACTION METER & ACCESSORIES

6110FS	FieldScout SC900 Soil Compaction Meter
2950CV5	GPS/DGPS Cable
7250	GPS Unit Mounting Bracket
6110FST	Replacement Depth Target
6106	1.5" (3.8cm) Replacement Tip (Fine Soils)
6107	3/4" (7.6cm) Replacement Tip (Coarse Soils)

SOIL COMPACTION TESTER

6120	Soil Compaction Tester
6121	1.5" (3.8cm) Replacement Tip (Fine Soils)
6122	3/4" (7.6cm) Replacement Tip (Coarse Soils)

FIELDSCOUT

LAQUA**twin**

pH K+ Ca2+ Na+ NO3- EC

Calibration Button
On/Off Button
Test Complete Indicator
Lights up when measurement is complete

Measurement Button
Press when ready to measure
Backlit Display

Meter and sensor
Waterproof as complete unit (IP67 rated)
Sensor is replaceable

Sensor
Sensor guard protects sensor; integrated slide cap opens for scooping water samples. Open the whole sensor guard when placing water or samples directly onto the sensor

Flat Sensor
Contains the measuring electrode and temperature sensor, it is the heart of the LAQUA Twin meter family. Enables 6 different methods of sample measurement

PUT THE POWER OF A LABORATORY RIGHT IN YOUR HANDS

- Professional grade meters
- Measure samples in nutrient solutions, water, soils, and tissue sap
- Waterproof pocket-sized meter with digital calibration
- Sensors store dry and are field replaceable
- Accuracy correlates well with laboratory analysis
- Unique flat sensor allows you to conveniently and accurately measure samples as small as 0.3mL
- Automatic temperature compensation, waterproof, auto power-off
- Includes two CR2032 batteries, case and calibration standards

	pH	Conductivity (EC)	Sodium	Potassium	Nitrate	Calcium
Measurement Principle:	Glass Electrode Method	2 AC Bipolar	Ion Electrode Method	Ion Electrode Method	Ion Electrode Method	Ion Electrode Method
Sample Volume Required:	0.1 mL to 2.0 mL	0.12 mL to 2.0 mL	0.3 mL to 2.0 mL	0.3 mL to 2.0 mL	0.3 mL to 2.0 mL	0.3 mL to 2.0mL
Measurement Range:	0 to 14 pH	0 to 199.9 mS/cm	2 to 9900 ppm	4 to 9900 ppm	6 to 9900 ppm	4 to 9900 ppm
Calibration:	pH 4 and pH 7	1.41 mS/cm	150 ppm and 2000 ppm*	150 ppm and 2000 ppm*	34 ppm and 450 ppm*	150 ppm and 2000 ppm*
Reproducibility:	± 0.1 pH	± 2%	± 10% or ± 10 ppm	± 10% or ± 10 ppm	± 10% or ± 10 ppm	± 20% or ± 20 ppm
Display:	4-digit digital LCD display with Backlight (New)					
Power:	CR2032 coin batteries (x2)					
Battery Life:	400 hours continuous operation with Backlight Off (New)					
Operating Range:	40°F (5°C) to 105°F (40°C), 85% relative humidity					
Dimensions:	164mm x 29mm x 20mm					

* High and low calibration points can be changed (customer must provide custom solutions)

LAQUA Twin pH Meter

2103ALP	LAQUA Twin pH Meter (Includes Case, Batteries, and pH 4 and 7 Standards)
2110	Refill Solutions pH4 and 7, 60mL Each
2143L	LAQUA Twin pH Replacement Sensor
2135L	Sampling Sheets, 100 Pieces

LAQUA Twin EC Meter

2205LP	LAQUA Twin EC Meter (Includes Case, Batteries and pH 4 and 7 Standards)
2210L	Conductivity Standard, 1.41mS/cm, (6) 14mL Bottles
2242L	Replacement Sensor

LAQUA Twin Sodium Na^+

2500GL	LAQUA Twin Sodium (Na^+) Meter (Includes Case, Batteries and Calibration Standards)
2540L	Replacement Sodium Sensor
2514L	150ppm Na^+ Standard, (6) 14mL Bottles
2518L	2000ppm Na^+ Standard, (6) 14mL Bottles
2535	Na^+ Soil Test Kit, 30 Samples (Includes Solutions, Filter Paper, Cups and Soil Scoop)
2135L	Sampling Sheets, 100 Pieces

LAQUA Twin Potassium K^+

2400GL	LAQUA Twin Potassium (K^+) Meter (Includes Case, Batteries and Calibration Standards)
2440L	Replacement Potassium Sensor
2414L	150ppm K^+ DI Standard, (6) 14mL Bottles
2418L	2000ppm K^+ DI Standard, (6) 14mL Bottles
2434	K^+ Soil Test Kit, 30 Samples (Includes Solutions, Filter Paper, Cups and Soil Scoop)
2135L	Sampling Sheets, 100 Pieces

LAQUA Twin Nitrate NO_3^-

2305GL	LAQUA Twin Nitrate (NO_3^-) Meter (Includes Case, Batteries and Calibration Standards)
2435L	Replacement Nitrate Sensor
2311	450ppm NO_3^--N Standard, (6) 14mL Bottles
2312	34ppm NO_3^--N Standard, (6) 14mL Bottles
2330	NO_3^- Soil Test Kit, 30 Samples (Includes Solutions, Filter Paper, Cups and Soil Scoop)
2135L	Sampling Sheets, 100 Pieces

LAQUA Twin Calcium Ca^{2+}

2450L	LAQUA Twin Calcium (Ca^{2+}) Meter (Includes Case, Batteries and Calibration Standards)
2455L	Replacement Calcium Sensor
2460L	150ppm Ca^{2+} DI Standard, (6) 14mL Bottles
2461L	2000ppm Ca^{2+} DI Standard, (6) 14mL Bottles
2135L	Sampling Sheets, 100 Pieces

Spectrum® Technologies, Inc.

"To Measure Is To Know"

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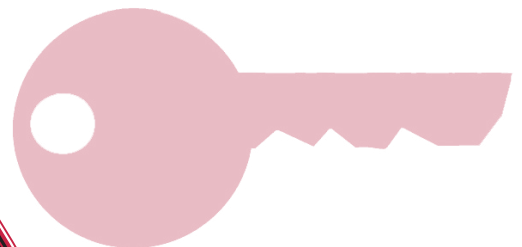info@specmeters.com
www.specmeters.com

NEW!
More Info
Page 23

AVOID DRIFT COMPLAINTS!

MEASURE AND RECORD
WIND SPEED AND DIRECTION
when spraying pesticides

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Form 120 (23-104)