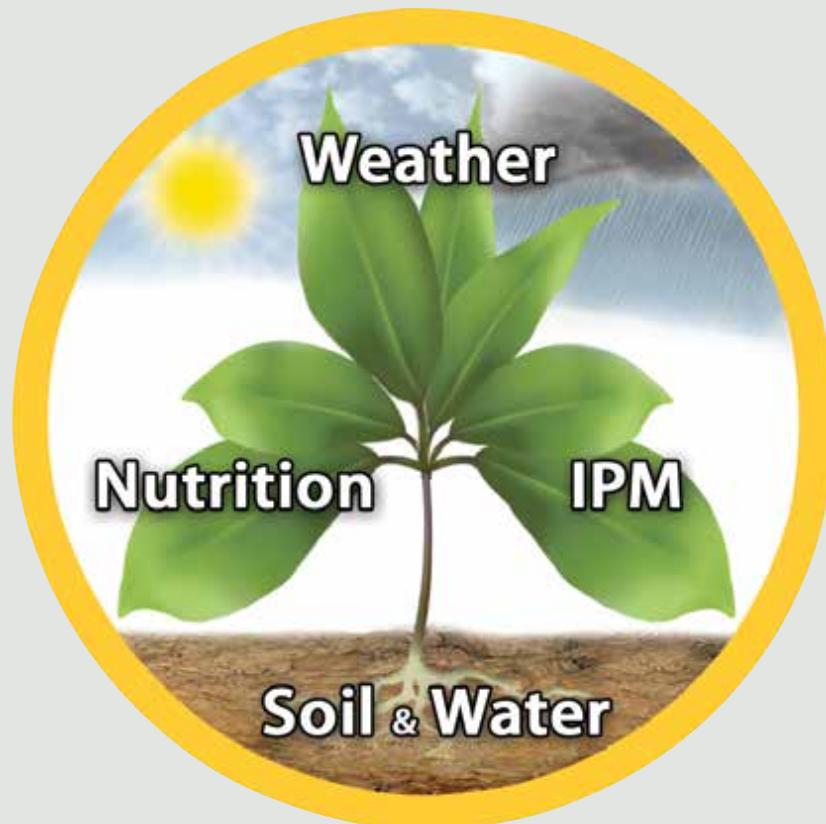


SMARTGROWTH™

TO MEASURE IS TO KNOW™



Spectrum®
Technologies, Inc.

SMARTGROWTH™

Welcome!

As Spectrum enters our 32nd year, I can't help but think about the unique journey we've experienced that could not have occurred without the efforts from our valued customers and our dedicated team around the world. We take pride in enhancing the work you do by providing you with the tools needed to make informed crop management decisions.

The Spectrum team often asks, "What do you want to measure?" because we are all about plant and soil measurement. As an innovator, Spectrum continues to develop new products for weather and environmental monitoring, nutrient management, plant health and soil moisture measurement tools.

We are committed to meeting your needs and exceeding your expectations by offering research grade products at affordable prices. Our comprehensive product range combined with proactive customer support provides you the ability to convert real-time data into profitable decisions.

We always welcome your feedback and suggestions.

Sincerely,



Mike Thurow
CEO & Founder
Spectrum Technologies, Inc.



**Spectrum®
Technologies, Inc.**

EASY TO CONTACT US

 Online	www.specmeters.com
 E-mail	info@specmeters.com
 Phone	1 (800) 248-8873 (U.S. & Canada)
	1 (815) 436-4440
 Fax	1 (815) 436-4460
	3600 Thayer Court
	Aurora, IL 60504 USA



The AE50 Award recognizes products ranked highest in innovation, significant engineering advancement, and impact on the market served.

Award Winning Products

Since 1987, Spectrum Technologies has received 24 AE50 Awards from the American Society of Agricultural and Biological Engineers, which demonstrates our deep commitment to innovation and quality.

2018 FieldScout® TDR 350 Soil Moisture Meter

2015 SpecConnect Web Portal

WatchDog® Retriever & Pups Wireless Network

2013 FieldScout® GreenIndex+ SmartPhone App

WatchDog® Cellular Alert Stations

2012 WaterScout® SMEC 300 Soil Moisture/EC/Temp Sensor

2011 WatchDog® 1000 Series Micro Station

LightScout® DLI 100 Light Meter

2008 WatchDog® Sprayer Station

SpecMaps™ Web Mapping Utility Software

2007 WatchDog® 2000 Series Mini Weather Station

2005 SpecWare™ Software

2004 FieldScout® Direct Soil EC Probe

FieldScout® TCM 500 Turf Color Meter

WeatherTracker Greenhouse Growth Tracker

2003 WatchDog® WeatherTracker

FieldScout® SC 900 Soil Compaction Meter

2002 WatchDog® Weather Station

FieldScout® TDR 300 Soil Moisture Meter

2001 FieldScout® CM 1000 Chlorophyll Meter

2000 WatchDog® Data Logger

1999 StarLogger Data Logger

Investigator Soil Compaction Meter

WatchDog® Leaf Wetness/Temperature Logger

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COMPANY OVERVIEW

Spectrum Technologies, Inc. manufactures affordable, leading-edge measurement information technology for the agricultural market throughout the world.

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 will continue to grow. The need to conserve resources such as soil and water will drive the need to CREATE more measurement information technology.

PRODUCTS

1

WEATHER

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



2

INTEGRATED PEST MANAGEMENT (IPM) TOOLS

Insect and Disease Models, IPM Scopes



3

SOIL MOISTURE & QUALITY MEASUREMENT

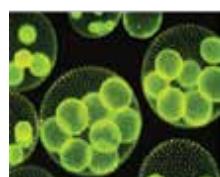
Soil Moisture, Soil Compaction and Water Quality Meters



4

NUTRIENT MANAGEMENT

Nutrient, Chlorophyll, pH, EC and Nitrogen Meters



CUTTING EDGE TECHNOLOGY



We are constantly developing exciting new products while offering our customers an amazing, award winning array of products, every year.

Imagine a meter that can measure light as it hits your plant, or receivers that send information about soil moisture so your crops can be managed on the fly.

We're innovating for you.

Spectrum
Technologies, Inc.

PEAK PLANT PERFORMANCE TOOLS
FOR BETTER CROP PRODUCTION

NEW FROM SPECTRUM



TDR 350 WITH INFRARED
TEMPERATURE SENSOR

WIRELESS RAIN COLLECTOR

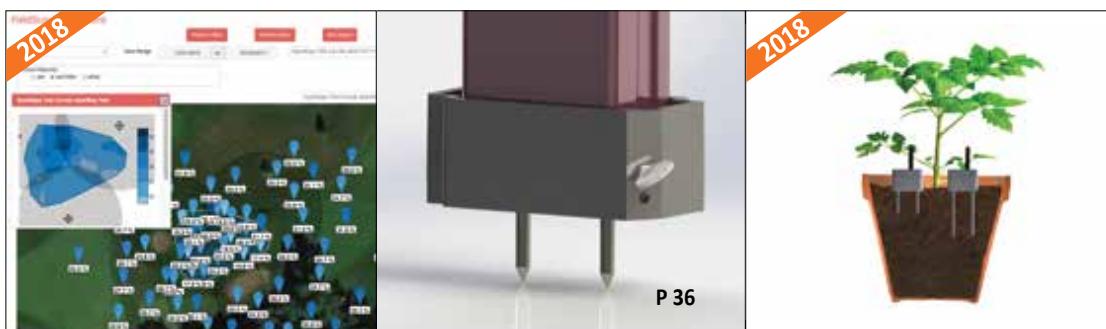
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WIRELESS IN-SITU SOIL MOISTURE SENSOR

ASPIRATED RADIATION SHIELD
WITH DIGITAL TEMP/RH SENSOR

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SMART IRRIGATION AUDIT

TDR SPACER FOR 1/2 AND 1 INCH
SOIL MOISTURE MEASUREMENTS

WIRELESS SOIL MOISTURE SENSOR

SPECCONNECT - DEVICE TO CLOUD SPECTRUM TO YOU

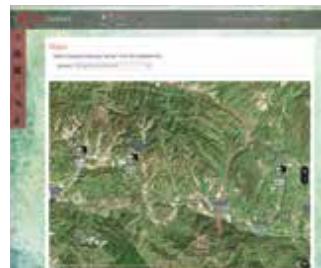


SpecConnect > DASHBOARD YOUR NETWORK



What will you see when using SpecConnect software to monitor your system?

Customized Alerts
Current Conditions
Multi-Sensor Station Report
Equipment Inventory & Activity
Area Map with Sensor Placement





- Web Portal connection requires a WatchDog Retriever & Pup network or any 2000 Series Weather Station to collect and log data, and DataScout Modem to send data to the internet
- FieldScout subscriptions require a TDR or TruFirm Meter and the free FieldScout Mobile App
- For more information about the FieldScout Mobile App, see pages 34-35

Pro WatchDog Subscriptions (includes one device)

3010US SpecConnect Pro 1-yr Subscription - Cellular, US/Canada For WatchDog devices, includes cellular plan

3030 SpecConnect Pro 1-yr Subscription - WiFi

3000 SpecConnect Initial Set Up Fee

Additional Devices and Services

3045US Additional WatchDog Device - Cellular (1-yr)
Needed per Pup or Station, includes cellular plan

3046 Additional WatchDog Device - Low-Cellular (1-yr)
(15-60 minutes, internal mean sensor values only)

3055 Additional WatchDog Device - WiFi (1-yr)
Needed per Pup or Station

3040 Additional Login (1-yr)
Limit of three users per subscription

3070 Alerts Function (1-yr)
Needed per device

3065 API Service - (one-time-charge)

Pro FieldScout Subscriptions (includes one device)

3035A SpecConnect FieldScout Pro (1-yr) 1-3 devices

3035B SpecConnect FieldScout Pro (1-yr) 4-7 devices

3035C SpecConnect FieldScout Pro (1-yr) 7 or more devices

SpecConnect WATCHDOG SUBSCRIPTION FEATURES

Customizable Dashboard	✓
Current Conditions	✓
Basic Wind Speed/Direction & Temp Gauges	✓
Advanced Wind Rose	✓
Data Storage	✓
Mapping	✓
Calibration Adjustment	✓
Disease Models (additional fee)	✓
Reports	
Basic Reporting	✓
Custom Reporting	✓
Evapotranspiration (ET) Reports	✓
Degree Days Reports	✓
Daily Light Integral (DLI) Reports	✓
Chill Hours/Units/Portions Reports	✓
Other	
Alerts (additional fee)	✓
API Service (additional fee)	✓

Disease & Insect Forecast Model Packages

1-YR SUBSCRIPTIONS

Become more 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-yr subscriptions

3095APP SpecConnect 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

3095CHP SpecConnect Cherry Alert Package

Required Sensors: Leaf wetness and temperature

Models Included: Leaf Spot
Insect Models

3095GAP SpecConnect Grape Alert Package

Required Sensors: Leaf wetness, relative humidity, and temperature

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: Temperature, relative humidity, and rain

Models Included: Early Blight
Late Blight (BliteCast)
Insect Models

3095TOP SpecConnect Tomato Alert Package

Required Sensors: Leaf wetness and temperature

Models Included: Tomcast
Insect Models

3095TUP SpecConnect 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 Model

3095NUP SpecConnect Nut Alert Package

Required Sensors: Temperature, leaf wetness, relative humidity, rain

Models Included: Almond Alternaria Leaf Spot
Almond Anthracnose
Pecan Scab
Pistachio Panicle and Shoot Blight
Walnut Blight
Insect Models



THE RETRIEVER & PUPS SYSTEM. LET YOUR PLANTS TALK TO YOU.

GROWERS, WINEMAKERS, FARMERS AND RESEARCHERS USE IT TO EXPERTLY MONITOR THEIR FIELDS, GREENHOUSES AND ORCHARDS WHEN THEY AREN'T AROUND.

Our Retriever & Pups System brings real time data to your mobile device anywhere you can access the internet.

Smarter decisions just got easier.

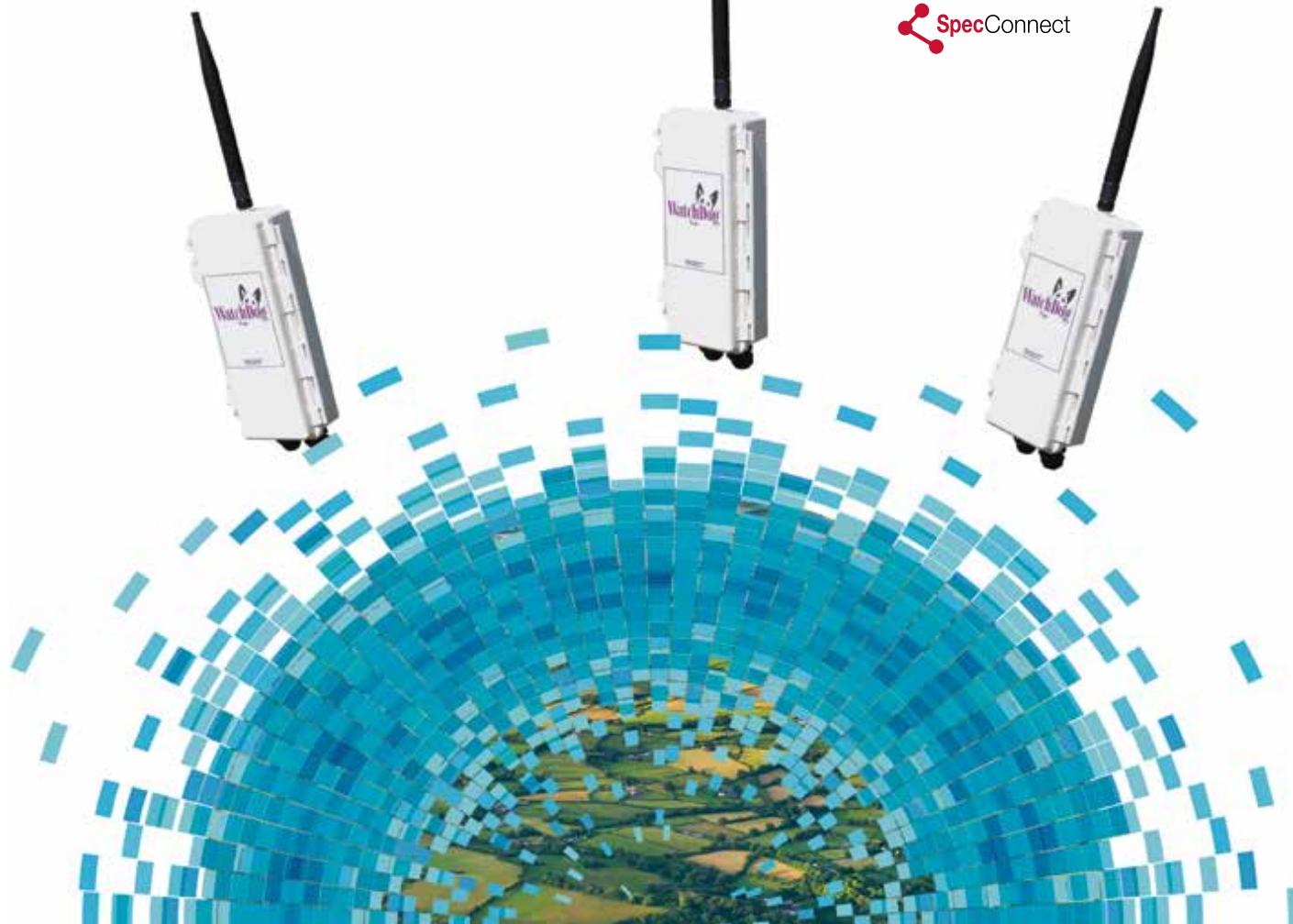


Each Retriever can support up to 16 Pups. Each Pup can hold four different sensors. And, you can send threshold alerts!

Our sensors measure everything from moisture to light, wind, rain, humidity, temperature and more. We can customize your setup, even add weather stations, to bring data from every nook and cranny of your property directly to you.

With SpecConnect Wireless Pups & Retrievers, send data to your personal dashboard and view the measurements instantly. Trust the data and eliminate the guesswork.

INNOVATIVE AGRONOMY



SPECCONNECT INTEGRATED WIRELESS SOLUTION

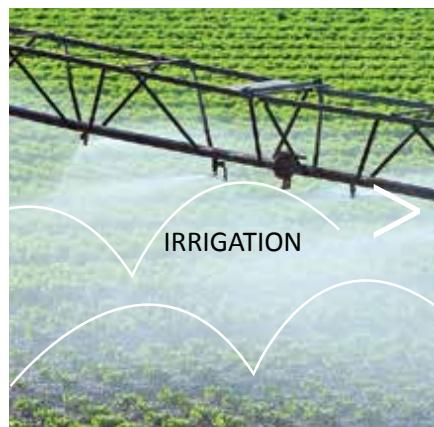


In-Field Applications



VINEYARDS & ORCHARDS

Easily spot frost and be alerted of conditions in your crops, monitor and note site-specific conditions for insect and disease pressures, and monitor soil moisture remotely.



IRRIGATION SOLUTIONS

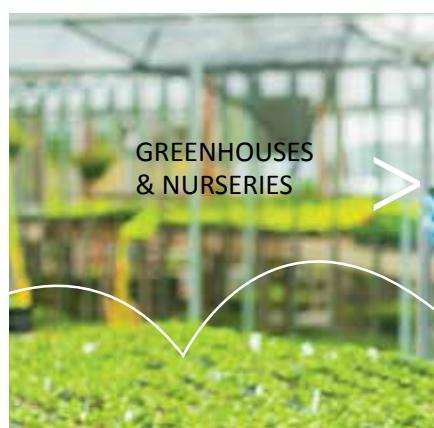
Flexibly monitor both soil moisture and EC in a variety of soil textures for better irrigation decisions.

Connect WatchDog Weather Stations to the network using a Station Pup.



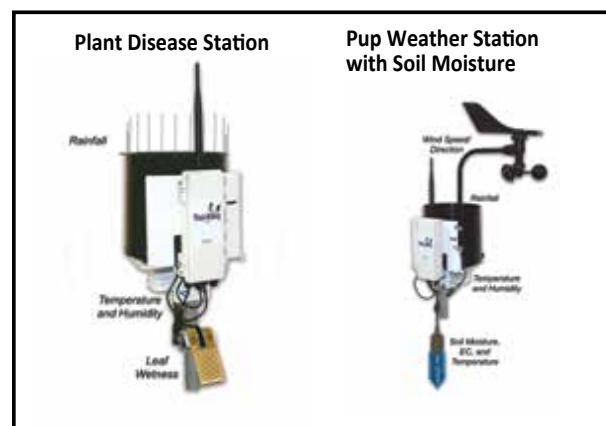
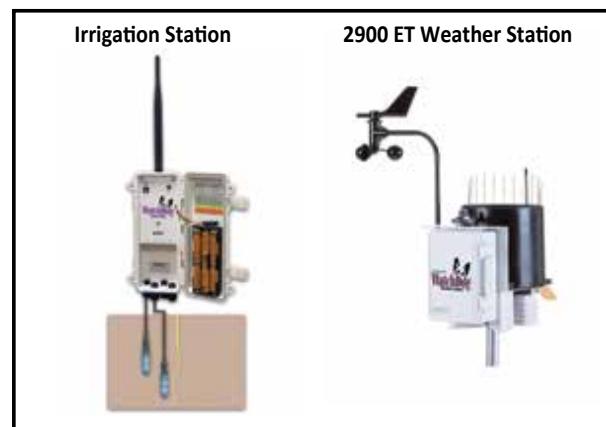
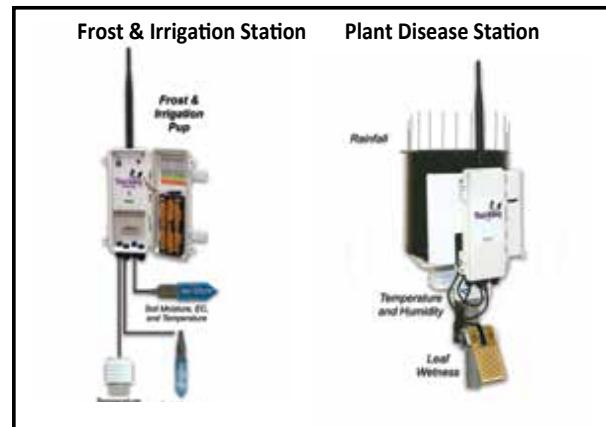
RESEARCH PLOTS/ FARM & GREENHOUSE STUDIES

Capture site-specific conditions remotely for insect and disease pressures, soil moisture monitoring, weather conditions, light and more.



GREENHOUSES & NURSERIES

Measure DLI (Daily Light Integral) and intensity for consistently better plant quality across greenhouse and high-tunnel structures. For outdoor growing, monitor soil moisture, temperature and EC for more efficient irrigation practices.





Sensor Pup Stations

- The most common Sensor Pups and sensors have been bundled together to simplify ordering
- Pup Stations are built on a unique mounting bracket to allow for simple installation
- Pup Stations (except ET Pup) have available sensor ports, allowing for additional/future expansion
- 900 MHz radio; 868 MHz and 2.4 GHz also available for international use - Call for details

NEW FOR 2018
BIRD GUARD
INCLUDED WITH ALL
RAINFALL SENSORS!

Pre-Packaged >



3900ET

WatchDog ET Pup Station

- Includes Pup and sensors:
Rainfall
Temperature/RH
Solar Light
Wind Speed/Direction
- No available sensor ports

3900ET

WatchDog ET Pup Station

3396TPS

Tripod Mount with Stakes



3900WS

WatchDog Pup Weather Station

- Includes Pup and sensors:
Rainfall
Temperature/RH
Wind Speed/Direction
- One available sensor port

3900WS

WatchDog Pup Weather Station

3396TPS

Tripod Mount with Stakes



3900PG

WatchDog Plant Growth Pup Station

- Includes Pup and these sensors:
PAR Light
Temperature/RH with Aspirated
Radiation Shield and solar
charging system
- Two available sensor ports

3900PG WatchDog

Plant Growth Pup Station

3396TPS

Tripod Mount with Stakes



3900PD

WatchDog Plant Disease Pup Station

- Includes Pup and these sensors:
Rainfall
Temperature/RH
Leaf Wetness
- One available sensor port

3900PD WatchDog

Plant Disease Pup Station

3396TPS

Tripod Mount with Stakes

Sensor Pup Options



100% Customizable



Sensor Specifications on Pages 22-23

WatchDog® Weather Stations & Data Loggers Comparison Chart



Item # Model

2000 Series Weather Stations

Item #	Model	SpecConnect Compatible	LCD Display	Wireless	STANDARD FEATURES						3672	3670I	OPTIONAL SENSORS & ACCESSORIES							
					Evapotranspiration	Alarm Output-Ready	Air Temperature Sensor	Relative Humidity Sensor	Dew Point	Wind Speed & Direction			Available Sensor Ports	Quantum Light Sensor	Ext. (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)
3350WD2	2900ET	✓	✓	Opt	✓	✓	✓	✓	✓	✓	✓	✓	5	Opt	Opt	Opt	Opt	Opt	P	
3345WD2	2800	✓	✓	Opt		✓						Opt	9	Opt	Opt	Opt	Opt	Opt	P	
3340WD2	2700	✓	✓	Opt		✓	✓	✓	✓	✓	✓	Opt	6	Opt	Opt	Opt	Opt	Opt	P	
3320WD2	2550	✓	✓	Opt		✓	✓	✓	✓	✓	✓	Opt	6	Opt	Opt	Opt	Opt	Opt	P	

2000 Series Mini Station

3684WDPD	Plant Disease Station	✓	✓	Opt		✓	✓	✓	✓	✓	✓	Opt	Opt	0	✓	Opt	Opt	Opt	Opt	P
3686WD	2475	✓	✓	Opt		✓	✓	✓	✓	✓	✓	Opt	Opt	1	✓	Opt	Opt	Opt	Opt	P
3684WD	2450	✓	✓	Opt		✓	✓	✓	✓	✓	✓	Opt	Opt	2	Opt	Opt	Opt	Opt	Opt	P
3683WD	2425	✓	✓	Opt		✓	✓	✓	✓	✓	✓	Opt	Opt	3	Opt	Opt	Opt	Opt	Opt	P
3685WD	2400	✓	✓	Opt		✓						Opt	Opt	4	Opt	Opt	Opt	Opt	Opt	P

Retriever & Pups Wireless Sensor Network

3900ET	ET Pup Station	✓		✓	✓		✓	✓	✓	✓	✓	Opt	Opt	0					✓	P
3900WS	Pup Weather Station	✓		✓	✓		✓	✓	✓	✓	✓	✓	Opt	1	Opt	Opt	Opt	Opt	✓	P
3900PD	Plant Disease Pup Station	✓		✓	✓		✓	✓	✓	✓	✓	Opt	✓	3	Opt	Opt	✓	Opt	✓	P
3900PG	Plant Growth Pup Station	✓		✓	✓		✓	✓	✓	✓	✓	Opt	Opt	2	✓	Opt	Opt	Opt	✓	A
3900	Sensor Pup	✓		✓			Opt	Opt				Opt	Opt	4	Opt	Opt	Opt	Opt	✓	P
3901	Station Pup	✓		✓										0						
3902	Repeater Pup	✓		✓										0						

1000 Series Micro Stations

3685SM14	Irrigation Station	✓										Opt	Opt	0			✓ (4)			
3685SM13	Irrigation Station	✓										✓	Opt	1	Opt	Opt	Opt	✓ (3)	Opt	
3684PD1	Plant Disease Station	✓										Opt	Opt	0			✓			
3684PAR1	Plant Growth Station	✓										✓	Opt	1	✓	Opt	Opt	Opt	Opt	P
3688WD1	1650	✓										Opt	Opt	4	Opt	Opt	Opt	Opt	Opt	
3687WD1	1525	✓										Opt	Opt	4	Opt	Opt	Opt	Opt	Opt	
3684WD1	1450	✓										Opt	Opt	2	Opt	Opt	Opt	Opt	Opt	
3683WD1	1425	✓										Opt	Opt	3	Opt	Opt	Opt	Opt	Opt	
3685WD1	1400	✓										Opt	Opt	4	Opt	Opt	Opt	Opt	Opt	
3682WD1	1250	✓										Opt	Opt	0						
3681WD1	1225	✓										Opt	Opt	1	Opt	Opt	Opt	Opt	Opt	
3680WD1	1200	✓										Opt	Opt	2	Opt	Opt	Opt	Opt	Opt	

A-Series Loggers

3611A	A160 Temp/RH/CO ₂	✓												0					+CO ₂	
3612A	A150 Temp/RH	✓												0						
3610A	A130 Leaf Wetness/Temp	✓												0						
3617ARS	A125 Soil/Air Temp Station	✓												0		✓				P
3617A	A125 Soil/Air Temp	✓												0		✓				
3618A	A110 Temperature	✓												0						

Sprayer Station

3349SSCH	Sprayer Station with Console	✓												0						
----------	------------------------------	---	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--

REFERENCE:

✓ STANDARD

Opt OPTIONAL

BLANK NOT AVAILABLE



WatchDog Retriever

- Receives all data from Pup network, each Retriever supports up to 16 Pups
- Includes USB Flash Drive and USB data cable
- Includes alkaline Non-Rechargeable Batteries. Can also be powered by DataScout modem, Direct-Connect cable or Solar Power Package
- 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 and 2.4 GHz also available for international use - Call for details

3910 **WatchDog Retriever**

Optional Accessories

3999	Solar Power Package Includes 5W solar panel and 6V 4.5Ah rechargeable battery
3396TPS	Tripod Mount with Stakes
3925	Antenna Extension Cable - 10 ft (3 m) Includes Mounting Bracket and Hardware
3388USB	Replacement USB Flash Drive
3927C75	PC Direct Connection Cable - 75 ft Connect your Retriever directly to your PC. Includes power and data cables, AC/DC power adapter, and DC plug adapter <small>Has 9-pin serial connection on PC end, may require USB adapter (Item 3661U9)</small>
3926	AC/DC Power Adapter

SpecWare Software

- SpecWare Pro software version 9.6 or later may be used to view Pup data on PC
- If using the SpecConnect Web Portal, then all data can be viewed online (SpecWare software not required)

3654P9 **Spec 9 Pro Software**



3920 DataScout Wi-Fi Modem



3922 DataScout CDMA Modem



3922 DataScout Modem mounted with a WatchDog Retriever



3923 DataScout Modem mounted with a WatchDog 2000 Series Full Weather Station

Modems

- 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 the AC/DC power adapter (Max 17VDC)
- Required for connection to SpecConnect, sold separately
- Provides power to attached Watchdog Stations and Retrievers

Compatibility Requirements:

- WatchDog Retriever - Item 3910 WatchDog Retriever (with non-rechargeable batteries). The DataScout Modem and the Retriever will share the power from the solar power package
- 2000 Series Weather Stations - the station must be running firmware version 7.6 or above.
- WatchDog 2000 Series Mini Stations - The station must be running firmware version 4.1 or above.

Cellular Modems

3922 CDMA Cellular Modem (US)

Includes solar panel and rechargeable battery pack

3923 3G HSPA+ Cellular Modem (US, Canada)

Includes solar panel and rechargeable battery pack

3924M 3G HSPA+ Cellular Modem (International)

Requires power selection from options below.

Wi-Fi Modems

3920 Wi-Fi Modem - AC/DC Powered

Includes 3926 AC/DC Power Cord

3920S WiFi Modem - Solar Powered

Includes solar panel and rechargeable battery pack.

3926 AC/DC Power Adapter

Power Options

3999 Solar Power Package

Includes 5W solar panel and 6V 4.5Ah rechargeable battery

3926 AC/DC Power Adapter

What Do You Want To Measure?

You can customize your WatchDog network, using different sensors based on the data you want to collect and analyze for better output performance. See WatchDog Sensors and Accessories, pages 12, 22-23

2000 Series Weather Stations



NEW!
Bird Guard
Included!

Model 2900ET
Shown with
optional Tripod
Mount
(not included)
and 3999WD Solar
Power Package
(not included).

NEW!
Solar Power
Option

**3999WD Solar
Power Package**

Includes 5W
solar panel
and 6V 4.5 AH
rechargeable
battery



Model 2900 ET

- The most powerful package for optimizing your irrigation and IPM decisions
- Measures wind direction, wind speed, air temperature, relative humidity, dew point, rainfall, solar radiation, evapotranspiration, with 5 available external sensor ports

**3350WD2 WatchDog® 2900ET
Weather Station**

Model 2700

- Affordable and versatile solution for growers, researchers, and consultants
- Measures wind direction, wind speed, air temperature, relative humidity, dew point, rainfall, with 6 available external sensor ports

**3340WD2 WatchDog® 2700
Weather Station**

Our award winner for Innovation in Technology. Manage your crop based on YOUR weather, not the airport's.

- Full-featured weather stations measure temperature, humidity, rainfall, wind, and solar radiation (varies by model). Also calculates degree days and chill hours
- Customize your station with plug-in sensors to meet your needs
- Accurate, real-time weather information directly from your field, orchard, vineyard or golf course
- Monitor, record, and analyze over a dozen important environmental inputs
- Log your data in fail-safe, non-volatile memory

- Communicate via wireless, cellular, shuttle, or direct connect, also compatible with the new WatchDog Station Pups and DataScout™ Modems
- Powered by four AA batteries - 10 months battery life with alkaline (included), 12 months with lithium
- Requires SpecWare™ Pro software or DataScout Modem and SpecConnect



Model 2550

- Ideal for fast, on-demand deployment without measuring rainfall
- Measures wind direction, wind speed, air temperature, relative humidity, dew point, with 6 available external sensor ports

**3320WD2 WatchDog® 2550
Weather Station**



2800

Model 2800

- Ideal where multiple sensor measurements are required for temperature, soil moisture, crop canopy light, or leaf wetness data
- Plug in up to 8 external sensors, plus 1 optional rainfall sensor

**3345WD2 WatchDog® 2800
Weather Station**

WATCHDOG 2000 SERIES WEATHER STATION FEATURES

Sensors	2900ET	2700	2550	2800	Specifications	Accuracy
Wind Direction	✓	✓	✓		1°	±3°
Wind Speed	✓	✓	✓		0, 1 to 200 mph (0, 1 to 322 km/h)	±2 mph (±3 km/h), ±5%
Air Temperature	✓	✓	✓	OPT	-40° to 257°F (-40° to 125°C)	±0.54°F at -40 to 194°C (±0.3°C)
Relative Humidity	✓	✓	✓		0% to 100%	±2% at 25°C
Dew Point	✓	✓	✓		-99° to 140°F (-73° to 60°C)	±4°F (±2°C)
Rainfall	✓	✓		OPT	0.01 in (0.25 mm)	±2% at < 2 in (5 cm) per hour
Solar Radiation	✓	OPT	OPT	OPT	0 to 1500 W/m²	±5%
Evapotranspiration	✓					
External Sensor Ports	5	6	6	9		
Available ports for SMEC 300 Sensors	1	2	2	2		
Operating temperature range:	-22 to 130°F (-30 to 55°C)					

WatchDog® 2000 Series Mini Stations



2000 Series Mini Stations

Monitor microclimates with up to 4 external sensor channels.

- Same power, flexibility, and accuracy as the 2000 Series Weather Stations
- Measure temperature, humidity, quantum light, and more (varies by model).
- Customize your Mini Station with 1 to 4 plug-in sensors to meet your needs
- Custom measurement intervals
- Reliable NEMA-4 type IP 66 enclosure and weatherproof connectors
- Communicate via wireless, cellular, shuttle, or direct connect. Also compatible with the new WatchDog® Station Pups, DataScout™ Modems
- 12-month battery power source (four AA alkaline batteries included)
- Requires SpecWare™ Basic or Pro software, or DataScout™ Modem and SpecConnect



Model 2475 Plant Growth Station

- Ideal for greenhouses - includes sensors for quantum (PAR) light, air temperature, relative humidity, with 1 available external sensor port
- 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 DIF – Average day/night temperatures differences
- Computes and displays VPD – Vapor Pressure Deficit

3686WD Model 2475 WatchDog® Weather Station



Model 2400 External Sensor Station

- Ideal where multiple sensor measurements are required for temperature, soil moisture, crop canopy light, or leaf wetness data
- Plug in up to 4 external sensors

3685WD Model 2400 WatchDog® Weather Station

LCD display on all
2000 Series
Mini Stati



- Use the LCD display to check current and daily high/low readings without a PC

What Do You Want To Measure?

You can customize your WatchDog network, using different sensors based on the data you want to collect and analyze for optimal system performance.

Model 2425 Temperature Station

- Measures air temperature with 3 available external sensor ports
- Plug in up to 3 external sensors

3683WD Model 2425 WatchDog® Weather Station

Model 2450 Temperature/RH Station

- Measures air temperature, relative humidity, with 2 available external sensor ports
- Computes and displays dew point

3684WD Model 2450 WatchDog® Weather Station

WATCHDOG® 2000 SERIES MINI WEATHER STATION FEATURES

Sensors	2475	2450	2425	2400	Specifications	Accuracy
Air Temperature	✓	✓	✓	OPT	-25° to 212°F (-32° to 100°C)	±1°F (±0.5°C)
Relative Humidity	✓	✓			10% to 100%	±3% at 20% to 100% and 25°C
Dew Point	✓	✓			-99° to 140°F (-73° to 60°C)	±4°F (±2°C)
Quantum Light (PAR)	✓	OPT	OPT	OPT	0 to 2500 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$	±5%
External Sensor Ports	1	2	3	4		
Available ports for SMEC 300 Sensors	1	2	3	4		
Operating temperature range: -22 to 130°F (-30 to 55°C)						



Weather Station
Recertification
Now Available - see website



Pre-Packaged Stations >

NEW FOR 2018
BIRD GUARD INCLUDED
WITH ALL RAINFALL
SENSORS!



WatchDog® 2000 Series Plant Disease Station

- Includes WatchDog Mini Station Model 2450, leaf wetness sensor and rainfall sensor
- View current conditions on LCD screen, as well as track severity indicators from onboard plant disease models
- Requires SpecWare™ Pro software or a DataScout Modem and SpecConnect
- University published disease models (sold separately) can be added to Specware or SpecConnect (**Pro version required**) for more accurate disease and pest monitoring
- Optional Wireless communication allows you to receive real-time conditions and send condition alarms to your PC
- **Buy a package and save!**

3684WDPD WatchDog® 2000 Series Plant Disease Station



WatchDog® 1000 Series Plant Disease Micro Station

- Includes Watchdog Model 1450 Micro Station, leaf wetness sensor, tipping bucket rain gauge, and radiation shield
- Data log current conditions and historical plant disease severity indicators
- Requires SpecWare™ Basic or Pro software

- University published disease models (sold separately-**requires SpecWare 9 Pro**) can be added for more accurate disease and insect monitoring
- **Buy a package and save!**

3684PD1 WatchDog® Plant Disease Micro Station



Soil/Air Temperature Station

- Study soil and air temperature trends across multiple microclimates
- Includes Model A125 Data Logger, external

- SpecWare 9 Basic or Pro and the A-Series PC Connection Cable are required

3617ARS Soil/Air Temperature Station



Plant Growth Micro Stations

- Includes a WatchDog Model 1450 Micro Station, Quantum/PAR light sensor and radiation shield
- Monitor conditions crucial to growing

- Requires SpecWare 9 Basic or Pro software
- **Buy a package and save!**

3684PAR1 WatchDog® Plant Growth Micro Station

WatchDog® 1000 Series Micro Stations



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 using the WaterScout® SMEC 300 Soil Moisture/EC/Temperature Sensor
- LCD displays sensor readings and battery level
- Select measurement intervals from 1 to 60 minutes
- Log 10,584 (8,064 with SMEC 300) intervals (220 days at 30 minute intervals)
- Water-resistant case (radiation shield or enclosure recommended for outdoor use)
- 12-month battery life (CR2450, included)
- Transfer data with a PC cable (supplied with SpecWare) or Data Shuttle
- Requires SpecWare™ 9 Basic or Pro software



DESCRIPTION	INTERNAL SENSOR	EXTERNAL PORTS	MAX. NUMBER OF SMEC 300 SENSORS
MODEL 1650 Item 3688WD1	TEMPERATURE RELATIVE HUMIDITY	4	2
MODEL 1525 Item 3687WD1	TEMPERATURE	4	2
MODEL 1450 Item 3684WD1	TEMPERATURE RELATIVE HUMIDITY	2	1
MODEL 1425 Item 3683WD1	TEMPERATURE	3	1
MODEL 1400 Item 3685WD1	NONE (EXTERNAL ONLY)	4	2
MODEL 1250 Item 3682WD1	TEMPERATURE RELATIVE HUMIDITY	NONE	0
MODEL 1225 Item 3681WD1	TEMPERATURE	1	0
MODEL 1200 Item 3680WD1	NONE (EXTERNAL ONLY)	2	1
MODEL 1120 Item 3554WD1	RAINFALL (SEE BELOW FOR DETAILS)	NONE	0
MODEL 1115 Item 3635WD1	REQUIRES EXTERNAL RAINFALL (SEE WEBSITE FOR DETAILS)	1	0



NEW IN '18

**BIRD GUARD
INCLUDED!**

1120 Data-Logging Rain Gauge

High accuracy, low-maintenance tipping bucket rain collector

- Meets NWS guidelines with an 8 in (20.5 cm) diameter collector
- The included data logger can log up to 10,584 intervals
- Select intervals from 1 to 60 minutes [maximum 10.23 in (26.0 cm) per interval]
- Rain collector mounting bracket and hardware included
- Record rainfall in either metric (mm) or US (in) units
- Accuracy: $\pm 2\%$ at < 2 in (5 cm) per hour
- Requires SpecWare 9 Basic or Pro
- Includes Bird Guard to reduce maintenance



3554WD1

Data-Logging Rain Gauge

WatchDog® A-Series and B-Series Data Loggers



A-Series Data Loggers

The most affordable way to track environmental conditions for analysis.

- Measure temperature, humidity, leaf wetness and CO₂
- LCD display confirms logger operation and displays last sensor readings
- Select measurement intervals from 1 to 120 minutes
- 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)
- SpecWare™ 9 Basic or Pro (Page 24) and the A-Series PC Connection Cable are required (see below)

Operating temperature range: -22 to 140°F (-30 to 60°C); A160: 32 to 122°F (0 to 50°C)
 Temperature range: -40 to 185°F (-40 to 85°C); A160: 14 to 140°F (-10 to 60°C)
 Accuracy: $\pm 1.1^{\circ}\text{F}$ ($\pm 0.6^{\circ}\text{C}$) at -4 to 122°F (-20 to 50°C), else $\pm 2.2^{\circ}\text{F}$ ($\pm 1.2^{\circ}\text{C}$); A160: $\pm 1.0^{\circ}\text{F}$ ($\pm 0.6^{\circ}\text{C}$)
 RH range: 0 to 100%, Accuracy: $\pm 3\%$ from 10-90% at 77°F (25°C), else $\pm 5\%$
 CO₂ range: 0 to 9999 ppm, Accuracy: ± 50 ppm $\pm 5\%$ of reading (0 to 2000 ppm), else unspecified

DESCRIPTION	INTERNAL SENSOR	INTERVALS	RADIATION SHIELD
MODEL A160 3611A	AIR TEMPERATURE RH, CO ₂	5,333	INDOOR USE ONLY (NO SHIELD AVAILABLE)
MODEL A150 3612A	AIR TEMPERATURE RELATIVE HUMIDITY	5,333	OPTIONAL
MODEL A130 3610A	AIR TEMPERATURE EXTERNAL LEAF WETNESS	4,000	INCLUDED
MODEL A125 3617A	AIR TEMPERATURE EXTERNAL TEMPERATURE	4,000	RECOMMENDED
MODEL A110 3618A	AIR TEMPERATURE	8,000	OPTIONAL



3611A



3612A



3617A

3661A WatchDog A-Series PC Connection Cable - USB
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
- SpecWare Basic or Pro software and the B-Series Docking Station are required

DESCRIPTION	INTERNAL SENSOR	INTERVALS	LCD DISPLAY
MODEL B102 T/RH 3621WD	TEMPERATURE RELATIVE HUMIDITY	4000	NO
Temp Range: -4 to 185°F (-20 to 85°C) Temp Accuracy: $\pm 1.1^{\circ}\text{F}$ from 5 to 149°F ($\pm 0.6^{\circ}\text{C}$ from -15 to 65°C) Humidity: 0 to 100%, $\pm 5\%$			
MODEL B101 8K 3620WD	TEMPERATURE	8000	NO
Range: -40 to 185°F (-40 to 85°C) Accuracy: $\pm 1.1^{\circ}\text{F}$ from 5 to 149°F ($\pm 0.6^{\circ}\text{C}$ from -15 to 65°C)			
MODEL B100 2K 3619WD	TEMPERATURE	2000	NO
Range: -40 to 185°F (-40 to 85°C) Accuracy: $\pm 1.8^{\circ}\text{F}$ from -22 to 158°F ($\pm 1.0^{\circ}\text{C}$ from -30 to 70°C) Use included plastic bag when measuring soil temperature			



Ideal for soil temperature

Docking Station

3655K1 WatchDog B-Series Docking Station - USB

WatchDog® Accessories & Communication Options

Accessories

3665BG



3396TPS



3658A



3663A



3672



3659WD1



Communication Options



3679WD1

Mid Range Wireless Communications - up to 2 mi (3 km)

Experience the advantages of real-time weather information by connecting your 2000 Series Remote Weather Stations to a PC up to 2 mi (3 km) away (requires line of sight from Station to Base). Base station features a weatherproof case and 50 ft (15 m) 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

3393B Mid Range Wireless Base Station

3393W Mid Range Wireless for Remote Station

Optional Yagi antennas increase line of sight range to 7 mi (11 km); see website for details

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, see page 39). Requires SpecWare 9 Basic or Pro or greater (page 24).

3679WD1 WatchDog 1000/2000 Data Shuttle

Cables & Adapters



3660-75SP

Short Range Modem Pair

Use short-range modems to maintain signal on wired connections up to 4,000 ft (1.2 km). Has 9-pin serial connection on PC end.

3365WD2 Short Range Modem Pair

Direct Connect Cables for Weather Stations

Connect your WatchDog Weather Station directly to your PC with a 75 ft (22.8 m) cable. Has 9-pin serial connection on PC end, may require USB adapter (Item 3661USB or 3661U9)

3660-75SP 75 ft (22.8 m) Direct Connect Cable

Includes surge protectors for both ends of the cable connection

3660DP 75 ft (22.8 m) Powered Direct Connect Cable

Includes AC adapter; no surge protectors

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

3661U
(Black cable)



3661U9
(White cable)

WatchDog® Sensors

Soil Sensors



6470-6

WaterScout® SMEC 300 Soil Moisture/EC/Temperature Sensor

Measures soil moisture (Volumetric Water Content), EC, and temperature. Range: VWC: 0 to saturation (typically 50%), Accuracy: $\pm 3\%$; EC: 0 to 10 mS/cm, Accuracy: $\pm 2\%$. May require WaterScout Calibration Device. See page 39 for more information. Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

6470-6

WaterScout SMEC 300 Sensor with 6 ft (1.8 m) Cable

6470-20

WaterScout SMEC 300 Sensor with 20 ft (6.1 m) Cable

6470CAL3V

WaterScout Calibration Device

2251

Conductivity Standard, 1.41 mS/cm, 250 mL



6460

WaterScout® SM 100 Soil Moisture Sensor

Measures soil moisture (Volumetric Water Content) with little or no disturbance to the root zone. Range: 0 to saturation (typically 50%), Accuracy: $\pm 3\%$. Optional WaterScout Calibration Device. See page 38 for more information. Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

6460

WaterScout SM 100 Sensor with 6 ft (1.8 m) Cable

6460-20

WaterScout SM 100 Sensor with 20 ft (6.1 m) Cable

6470CAL3V

WaterScout Calibration Device



6450WD

Watermark Soil Moisture Sensor

Measures soil moisture tension from 0 to 200 centibars. May require Watermark Adapter to connect original Watermarks to stations. See page 43 for more information. Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

6450WD

Watermark Sensor with 11 ft (3.3 m) Cable

6450WD20

Watermark Sensor with 25 ft (7.6 m) Cable



3667

External (Soil) Temperature Sensor

Measure soil, air, or water temperature with a resistance-based sensor. Range: -25 to 212°F (-32 to 100°C). Accuracy: $\pm 1^\circ\text{F}$ ($\pm 0.5^\circ\text{C}$). Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

3667

External (Soil) Temperature Sensor with 6 ft (1.8 m) Cable

3667-20

External (Soil) Temperature Sensor with 20 ft (6.1 m) Cable



3669

Pressure Transducer

Adapts to Irrrometer tensiometers and utilizes the dial gauge for measurements. See page 41 for more information. Accuracy: $\pm 2\%$. Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

3669

Pressure Transducer



6451

Irrigation On/Off Sensor

Record and analyze relationships between irrigation periods and soil moisture. Does not control irrigation system, but monitors on/off periods. Range: On at 5psi. Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

6451

Irrigation On/Off Sensor

Light Sensors



3668I / 3676I

LightScout® Silicon Pyranometer

Measure solar radiation between 300 and 1100 nanometers. Range: 2000 Series & Pups: 0 to 1500 W/m², Accuracy: $\pm 5\%$; Micro Stations: 0 to 1250 W/m², Accuracy: $\pm 5\%$. Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

3670I

LightScout Silicon Pyranometer

LightScout® UV Light Sensor

Measure UV radiation between 250 and 400 nanometers. Range: 0 to 200 $\mu\text{mol m}^{-2} \text{s}^{-1}$, Accuracy: $\pm 5\%$. Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

3676I

LightScout UV Light Sensor

LightScout® Quantum Light Sensors

Measure PAR light between 400 and 700 nanometers. Sensor bars average PAR light readings to minimize the effects of small shadows. Sensor bars are 19 in (48 cm) long and include mounting brackets. Range: 2000 Series & Pups: 0 to 3000 $\mu\text{mol m}^{-2} \text{s}^{-1}$, Accuracy: $\pm 5\%$; Micro Stations: 0 to 2500 $\mu\text{mol m}^{-2} \text{s}^{-1}$, Accuracy: $\pm 5\%$. Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

3668I

LightScout Quantum Light Sensor

3668I3

LightScout Quantum 3 Light Sensor Bar

3668I6

LightScout Quantum 6 Light Sensor Bar

Environmental Sensors



3667S



3665R



3666



3671



2655

Temperature (Micro) Sensor

Measure surface temperature of leaves, buds, and other tiny mediums.

Range: -25 to 212°F (-32 to 100°C). Accuracy: $\pm 1^{\circ}\text{F}$ ($\pm 0.5^{\circ}\text{C}$). Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

3667S

Temperature (Micro) Sensor

Tipping Bucket Rain Collector

Measure rainfall in 1/100 inch increments. Self-emptying and freeze resistant. Range: 0.01", 0.25 mm, Accuracy: $\pm 2\%$ at < 2 in (5 cm) per hour. Compatible with WatchDog 2000 Series Stations (Full and Mini) and 1000 Series Micro Stations

3665R

Tipping Bucket Rain Collector

Leaf Wetness Sensor

Measure leaf wetness with a resistance-based sensor designed to replicate a leaf. Range: 0 (dry) to 15 (wet). Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

3666

Leaf Wetness Sensor

Barometric Pressure Sensor

Measure atmospheric pressure. Range: Standard Sensor: 26 to 32 inHg, 880-1080 hPa, Accuracy: ± 0.05 inHg, ± 1.7 hPa; High Altitude Sensor: 18.75 to 33.1 inHg, 635-1121 hPa, Accuracy: ± 0.057 inHg, ± 1.9 hPa
Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

3671

Barometric Pressure Sensor - Standard

3671M

Barometric Pressure Sensor - High Altitude

CO₂ Sensor

Measure CO₂ levels in ppm using NDIR technology. Requires AC power. Not waterproof. Range: 0 to 4000 ppm, Accuracy: $\pm 5\%$ or 50 ppm. Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

2655

CO2 Sensor

2655X

International Power

Miscellaneous Cables



3664



3673

Sensor Extension Cable

20 ft (6 m) extension for all sensors (except digital sensors), connect up to 3 cables per sensor

3664

Sensor Extension Cable

General Input Cables

Connect non-WatchDog sensors to your WatchDog Station. (Item 3673) Range: 0 to 3v, Accuracy: ± 0.005 v. (Item 3674) Range: 0 to 20.1 mA, Accuracy: $\pm 1\%$. Compatible with WatchDog 2000 Series Stations (Full and Mini), 1000 Series Micro Stations, and Pups

3673

0-3V Input Cable

3674

4-20mA Input Cable

Digital Sensors (for Pups only)



3613ARS



3613THS



3665RD



3305ADD

Digital Temperature/RH Sensor with Aspirated Radiation Shield

Digital temperature and RH sensor with 6 ft (2 m) cable, includes solar charging system to power internal fan. Range: -40 to 212°F (-40 to 100°C), 0 to 100% RH, Accuracy: $\pm 0.54^{\circ}\text{F}$ from 50 to 131°F (0.3°C from 10 to 55°C), $\pm 2.5\%$ RH Compatible with WatchDog Pups only. Operating temperature 14 to 140°F (-10 to 60°C)

3613ARS

Temperature/RH Sensor with Aspirated Radiation Shield

Digital Temperature/RH Sensor with Passive Radiation Shield

Digital temperature and RH sensor with 6 ft (2 m) cable. Range: -40 to 212°F (-40 to 100°C), 0 to 100% RH, Accuracy: $\pm 0.54^{\circ}\text{F}$ from 50 to 131°F (0.3°C from 10 to 55°C), $\pm 2.5\%$ RH Compatible with WatchDog Pups only

3613THS

Temperature/RH Sensor with Passive Radiation Shield

Digital Rain Collector

Measure rainfall in 1/100 inch increments. Self-emptying and freeze resistant. Range: 0.01", 0.25 mm, Accuracy: $\pm 2\%$ at < 2 in (5 cm) per hour. 6 ft cable. Compatible with WatchDog Pups only

3665RD

Digital Rain Collector

3665DC

Digital Cable - 6 ft

Cable with tinned wire termination - for Pup connection to existing rain collectors only

Digital Anemometer

Measure wind speed and direction. 40 ft cable. Range: 0 - 359°, Accuracy: $\pm 3^{\circ}$, Range: 0, 1 to 200 mph (0, 1 to 322 km/h, Accuracy: ± 2 mph (± 3 km/h), $\pm 5\%$. Compatible with WatchDog Pups only

3305ADD

Digital Anemometer

NEW IN '18

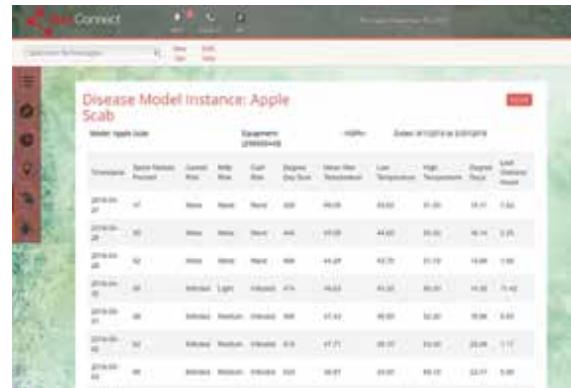
BIRD GUARD
INCLUDED!

Software Options

SpecConnect



- Monitor your crops from wherever you are with the SpecConnect cloud solution
- See real-time conditions on your computer, smart phone, or tablet
- View current conditions with a mapped view of your stations
- Set custom thresholds to send alerts via text message and/or email
- Configure your equipment network from your computer
- Choose among a wide selection of standard reports for your weather data
- Create your own customized reports
- Proactively manage disease and insects using forecast models (optional subscription)
- Easily export data and reports to share or import to other applications
- For SpecConnect details, see pages 6-7



SpecWare 9 Basic



- Easily download, analyze, and produce basic reports from the weather data collected on your WatchDog® Micro Stations and data loggers
- Eliminate valuable time exporting the data and performing calculations in tedious spreadsheet programs
- Spec 9 Basic automatically assigns each WatchDog Data Logger Station to its own “logger location” directory, which is appended every time you download new data
- Includes USB cable and manual
- Download the software from specmeters.com (activation required)

Spec 9 Basic does not support disease models, or the 2000 Series Full or Mini Weather Stations, or Retriever & Pups

3654B9	Spec 9 Basic Software
3654B9X	Spec 9 Basic Extra User License
3654B9U	Spec 9 Basic Upgrade*
3661U	USB-to-3.5mm-Stereo-Plug Adapter

* Does not include USB cable

SpecWare 9 Pro



Powerful analysis tools that are easy to use.

- Graph on-the-fly with an interactive graphing window
- Build, customize, and save your most important report formats or choose from 15 standard reports
- Add optional insect and disease models to forecast pest pressures and reduce pesticide costs; produce reports with graphs for each pest
- Set a frost alarm that will call your phone at frost temperatures or other sensor conditions
- Automate logger downloads with wireless or directly connected stations
- Generate scheduled log files for data-to-web applications or create an XML file that can be posted on the web
- Find and use data easily with an open file management system - all logger data is stored in one file per month, simplifying data sharing and exporting
- Import data files from other applications
- International features include handling date, time, and numbers with regional formats and Metric or US measurements
- Includes USB cable and manual
- Download the software from specmeters.com (activation required)

3654P9	Spec 9 Pro Software
3654P9X	Spec 9 Pro Extra User License
3654P9U	Spec 9 Pro Upgrade*
3661U	USB-to-3.5mm-Stereo-Plug Adapter

* Does not include USB cable

BASIC VS. PRO

COMPARING SPEC 9 BASIC TO SPEC 9 PRO

Basic | Pro

View Data

On-demand graphing

✓

Manage Data

Calibration adjustment

✓

Automatic data append

✓

Single file per logger

✓

International data format

✓

Reports

Standard reports

✓

Custom reports

✓

Disease & Insect models

OPT

“Pest Alert” report models

OPT

Communications

Direct connect or modem

✓

Wireless capability

✓

Cellular or wi-fi modem

✓

Auto download

✓

Supported Products

2000 Series Full Stations

✓

2000 Series Mini Stations

✓

Retriever & Pups

✓

1000 Series Micro Stations

✓

A-Series & B-Series

✓

SpecWare™ 9 software is compatible with Windows XP and later.

GO TO SPECMETERS.COM/UPDATES
TO ENSURE YOUR SOFTWARE
VERSION IS COMPATIBLE WITH OUR
NEWEST WATCHDOG MODELS.

WatchDog® Sprayer Station



GO-TO STRATEGY

KEEP SPRAY WHERE IT BELONGS FOR SAFE, PRECISE CHEMICAL APPLICATION

Reduce pesticide drift complaints and monitor your current weather conditions. Mount it right on your equipment or vehicle!

Pesticide drift is increasingly important to commercial applicators. Now you can monitor wind speed and direction and log weather conditions with the ultrasonic WatchDog® Sprayer Station. Accurate data helps pesticide applicators make important decisions regarding weather conditions that affect safety, drift, and proper pesticide application. User-controlled data logging of weather conditions provides evidence of suitable conditions for pesticide application.

Weather uncertainty will never be an issue for you with this tool.

- This all-in-one weather station measures air temperature, humidity, dew point, wind chill, barometric pressure and apparent wind speed and direction
- 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
- Field replaceable humidity sensor
- Handles adverse conditions with a UV-stabilized, compact housing that is fully waterproof and resistant to chemicals
- Reliability is enhanced by eliminating moving parts: the traditional wind vane and cups have been replaced with ultrasonic transducers
- Continuously log your weather parameters at a user-selectable rate or hit the snapshot button to capture current conditions at a specific moment



WatchDog® Sprayer Station Console

WatchDog® Sprayer Station



Integrates with Raven® Envizio Pro, Viper Pro and Viper 4

Sprayer Station

3349SSCH

WatchDog® Sprayer Station with Console

Buy them together and save!

3349SSH

WatchDog® Sprayer Station

Includes sensor unit with magnetic base, 21 ft (7 m) cable with vehicle power and 9-pin serial connectors, and display/logging program for Windows Mobile PDA or Windows Laptop

3349CN

WatchDog® Sprayer Station Console

Includes console with built-in data logger, USB-to-3.5mm stereo cable, and software CD

3349H
3661U9

Replacement Humidity Sensor USB-to-9-Pin-Serial Adapter

SPECIFICATIONS FOR SPRAYER STATION

Wind Resolution - Speed: 0.1 mph (0.2 km/h); Direction 1°

Wind Speed Range: 0 to 90 mph (0 to 145 km/h)

Wind Speed Accuracy: <12 mph (19 km/h): ±1.1 mph (1.7 km/h) ±10%;

>12 mph (19 km/h): ±2.3 mph (3.7 km/h) or ±5%

Wind Direction Accuracy: 4 to 11 mph (6 to 18 km/h): ±5°; >12 mph (19 km/h): ±2°

Wind Accuracy Temperature Range: 32° to 131°F (0° to 55°C)

Operating Temperature: -13° to 131°F (-25° to 55°C)

Temperature Accuracy: ±2°F (±1.1°C) with wind above 4.6 mph (7.4 km/h)

Relative Humidity Range: 10 to 95%

Relative Humidity Accuracy: ±5% with wind above 4.6 mph (7.4 km/h)

Barometric Pressure Range: 24 to 33 in-Hg (800 to 1100 hPa)

Barometric Pressure Accuracy: ±0.029 in-Hg (±1 hPa)

Power Supply Voltage: 9 to 40 VDC; Current: <90 mA@12VDC

WatchDog® WeatherTrackers



WeatherTrackers

Monitor weather conditions without the need for a computer.

- Record and display conditions in your orchard, vineyard or greenhouse that can alert you to insect and plant disease pressure
- Values are calculated based on sensor readings taken every 15 minutes

Degree days:

- Program up to three degree-day memories and one chill-hour memory
- Solar radiation shield and 15-minute degree-day data point intervals result in exceptionally accurate degree-day calculations

Built-in Data Logger:

- Store your events in fail-safe, non-volatile memory
- Replace the batteries without losing valuable weather data
- More than enough memory for a complete growing season

LCD display:

- Displays the current conditions in addition to the daily high/low temperature readings, degree days, leaf wetness hours*, disease pressure*, DLI/DIF (Daily Light Integral and day/night temperature difference)*
- Recall the last 30 days of detail data, as well as 12 months of summaries
- Current readings are updated every 15 seconds

* on applicable models

Battery powered:

- 8-month battery power source (9V battery included) means no solar panels to purchase or maintain

**NO PC
NEEDED!**



3501PAR



3512

SPECIFICATIONS FOR WEATHERTRACKERS

Item #	Model #	Air Temp	Quantum Light	Leaf Wetness	Disease Forecast
Greenhouse Growth Tracker 3501PAR	305	Yes	Yes	No	No
Degree Day Tracker 3500	300	Yes	No	No	No
Apple/Pear Pest Alert 3504	320	Yes	No	Yes	Apple Scab Sooty Blotch
Grape Pest Alert 3512	330	Yes	No	Yes	Powdery Mildew Black Rot

80° F
352ufl
AVG 79° F
6.6ufl/DAY

APPLE SCAB
INFECT = NONE

Greenhouse Growth Tracker Monitor both current and cumulative light levels

Apple/Pear Pest Alert

DD#1 50-860 18
SINCE 04/12 0377

POWDERY MILDEW
ASC=NONE CON=70

All Models Show current degree days

Grape Pest Alert
Built-in disease models allow you to make
adjustments as soon as it is needed.

Weather Stations

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.

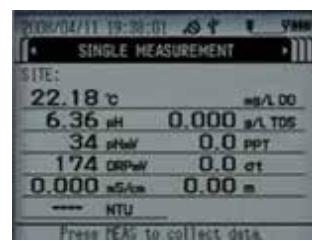
Control Unit Features:

- 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

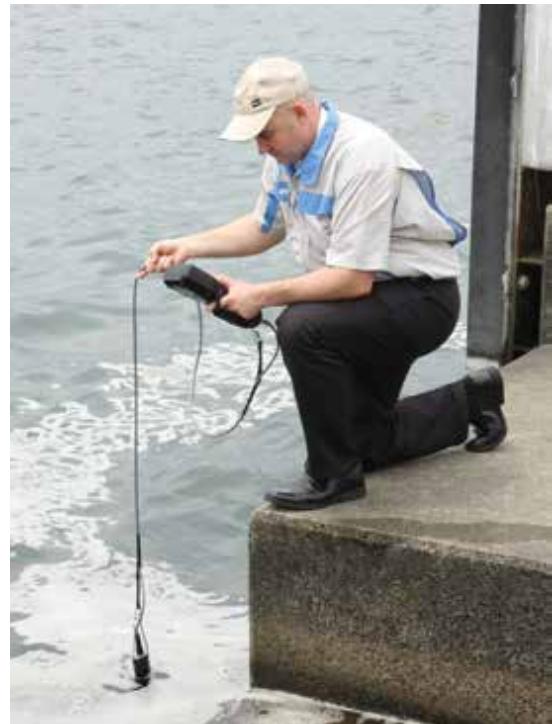
Sensor Probe Unit Features:

- 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
Item 2198-30	U53-30 Meter with 30m Cable
Item 2199-2	U53G-2 Meter with 2m Cable
Item 2199-10	U53G-10 Meter with 10m Cable
Item 2199-30	U53G-30 Meter with 30m Cable



Water quality monitor displays 11 parameters simultaneously



U-50 SERIES COMPARISON

U-51 U-52 U52G U-53 U-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		✓		✓	

Frost Alerts

WatchDog® Frost Cellular Alert

Ideal for temperature-sensitive fruits and vegetables - be alerted when frost conditions are near.

- LCD display (current settings, signal strength, etc.)
- Key pad for user set up: user-defined thresholds, system test operation
- Relay terminal connections to control an external device
- NEMA 4 (IP66) enclosure
- GSM 3G/HSPA+ cellular module included (user provides SIM card and service plan
—Pay-As-You-Go recommended)
- CDMA model for Verizon Wireless (service plan required)
- Set a second limit to periodically send texts with current conditions
- Makes voice call or sends text message (or both) to up to 4 phone numbers
- Makes voice call again, if calls go unanswered
- Requires 6-volt lantern battery (not included)
- Includes 6 ft (1.8 m) external temperature sensor

Temperature range: -22 to 130°F (-30 to 55°C)

Accuracy: $\pm 1.1^{\circ}\text{F}$ ($\pm 0.6^{\circ}\text{C}$) at -4 to 122°F (-20 to 50°C), else $\pm 2.2^{\circ}\text{F}$ ($\pm 1.2^{\circ}\text{C}$)

3453
3452

WatchDog® Frost Cellular Alert Pro - GSM 3G HSPA+
WatchDog® Frost Cellular Alert Pro - CDMA



Visual Frost Alert

Spot frost conditions easily in your vineyard or orchard.

- When temperatures approach freezing, the high-powered LED light (visible from about two miles) changes flash frequency and pattern to indicate temperature conditions at a glance
- Sensor cable is 6 ft (1.8 m) long for ease of placement
- Requires 3 AAA lithium batteries (not included)

3435 WatchDog® Visual Frost Alert
3435PK3 BUY TOGETHER AND SAVE!

Temperature	Interval	Flashes per Interval
Above 37°F (3°C)	30 Seconds	1
34 to 37°F (1 to 3°C)	30 Seconds	2
32 to 34°F (0 to 1°C)	15 Seconds	3
30 to 32°F (-1 to 0°C)	5 Seconds	4
Below 30°F (-1°C)	1 Second	1

Color Frost Alert

Protect your high-value crops.

- Easy visual signal for helicopter pilots or distance viewing
- When temperatures approach freezing, the high-powered LED light (visible from about two miles) changes color and flash frequency to indicate temperature conditions at-a-glance
- Shuts off above 37°F (2.8°C) to conserve power
- Requires 6V lantern battery (not included)

3430 WatchDog® Color Frost Alert

Color Frost Alert Warning Colors

Lights will warn you of falling temperatures and risk of frost.



Green – Above 34°F (1°C)
White – 32° to 34°F (0-1°C)
Red – Below 32°F (0°C)
Flashing Red – Below 30°F (-1°C)



Digital Microscopes & Macroscopes

IPM Scope

Portable digital microscope at an affordable price.

The IPM Scope combines a digital camera, precision optics, and LED lighting into a powerful handheld microscope that connects to your computer via USB

- 40x and 140x magnification
- View magnified image right on your computer screen
- Included software allows you to customize your images with labels, markers, time stamps, and measurement scales
- Archive still images or send files via e-mail
- Requires computer connection to operate, includes software
- Video software upgrade provides the ability to capture live videos and time lapse sequences of insect movement

2860	IPM Scope
2860V	Video Software Upgrade
2860UV	IPM Scope-Ultra Violet
2860MP	IPM Scope-Mega Pixel
2860HS	Plastic Horseshoe-3D images
2860MAC	Software for Mac Computers

Go to www.specmeters.com for more models and accessories



IPM Scope shown with optional Plastic Horseshoe to view 3D images

SPECIFICATIONS FOR IPM SCOPE

Image Sensor: 1/3 in CMOS	Pixels: 640 x 480
Power: USB Port	Light Source: Super-bright LEDs
Field of View: @40x: 7.5 x 10 mm @140x: 1.8 x 2.5 mm	Resolution: 4 microns



Image taken by IPM Scope - Mega Pixel



Image taken by IPM Scope

Macroscopes

Identify pests and diseases up close.

- Macroscope 25 provides 25X magnification over a wide 5 mm (3/16 in) field of view
- Macroscope 45 provides 45X magnification over a wide 3 mm (2/16 in) field of view
- Positionally correct image includes an interchangeable scale
- Incorporates a measuring scale providing measurements in inches or millimeters
- Can be used for distance viewing when close-up lens is removed

2851	Macroscope 25 with hard carrying case
2852	Macroscope 45 with hard carrying case



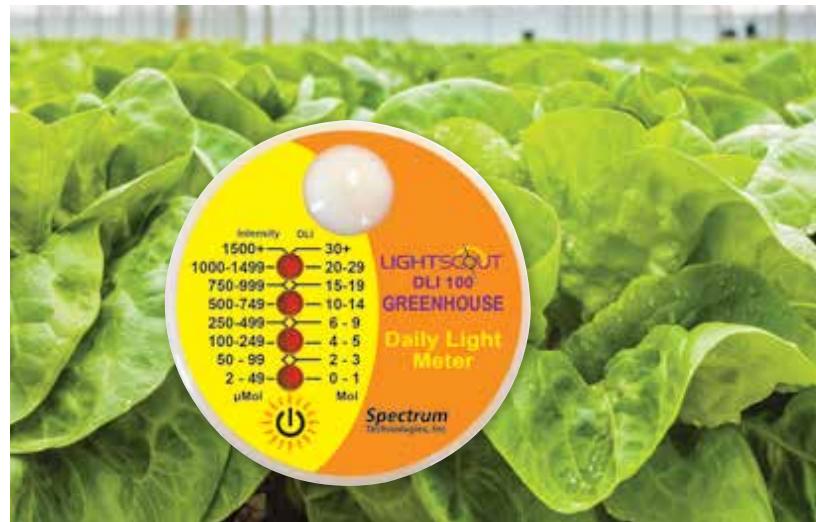
photo courtesy of Derek Settle

Sunlight > How much or how little?



Put as many as you like anywhere you like to find out exactly what light is available in that precise location. A simple way to measure how much sunlight even a shaded area really gets. Stick it in a pot, in your turf or anywhere!

Growers can position the meters throughout the greenhouse, as well as outside, to compare differences in light levels and the effect on plant growth and quality.



Works Everywhere!

LIGHTSCOUT® DLI 100 Light Meter

Greenhouse and Turf Models

Measure the light "falling" on your plants.

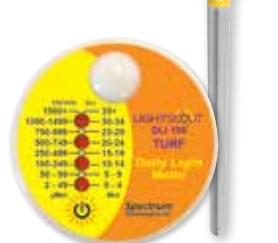
- Measures PAR light (Photosynthetically Active Radiation)
- Meter runs for 24 hours to calculate the Daily Light Integral (DLI)
- Real-time intensity levels are shown in $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ every 4 seconds
- Greenhouse and Turf models available - each model provides greater resolution where it's needed most
- Helps you make decisions to increase plant growth and quality
- Simultaneously compare light between multiple locations
- Simple, one button operation
- Affordable, first step in measuring light
- Battery included

3405G3 LightScout® DLI 100 Meter - Greenhouse (set of 3)
 3405G LightScout DLI 100 Meter - Greenhouse (1 unit)

[BUY TOGETHER AND SAVE!](#)

3405T3 LightScout® DLI 100 Meter - Turf (set of 3)
 3405T LightScout DLI 100 Meter - Turf (1 unit)

[BUY TOGETHER AND SAVE!](#)



"Measuring DLI inside the greenhouse can be very revealing, since growers usually rely on their eyes to determine the light levels and the human eye is a terrible light sensor because it is so effective at adjusting to different light environments."

James E. Faust
 Associate Professor of Horticulture
 Clemson University

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 ($\mu\text{mol}/\text{m}^2\cdot\text{s}$)

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.

Light Meters & Growth Stations



3412

LIGHTSCOUT® Red/Far-Red Meter

Red/Far-Red light ratio helps plants determine their proximity to each other, which affects 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 660 nm and 730 nm readings
- Includes soft-sided case (also available separately as Item 7500)

3412

LightScout® Red/Far-Red Meter



3414F

LIGHTSCOUT® 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 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ (full sunlight)

3414F
7500

LightScout® UV Meter
Soft-Sided Carrying Case



3415FXSE

LIGHTSCOUT® 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 $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
- Available in a variety of configurations for your convenience

3415F	LightScout® Quantum Meter
3415FSE	LightScout® Dual Solar/Electric Quantum Meter
3415FXSE	LightScout® Dual Solar/Electric Quantum Meter - External Sensor
3415FQF	LightScout® Quantum and Foot-Candle Meter
7500	Soft-Sided Carrying Case

LIGHTSCOUT® Foot-Candle Meter

Displays immediate light level in units of foot-candles.

- An affordable light measurement solution
- Precision photodiode with cosine correction

3413F 7500	LightScout® Foot-Candle Meter Soft-Sided Carrying Case
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External Light Sensor Reader

Reads any of Spectrum's external light sensors.

- Plug in a sensor, choose it on the LCD, and start measuring UV, Quantum Light, or Solar Radiation
- Sensors can also be used with WatchDog® Weather, Mini, and Micro Stations
- LightScout® External Light Sensor Reader includes soft-sided case (also available separately as Item 7500)

3415FX	LightScout® External Light Sensor Reader Compatable light sensors sold separately:
3668I	LightScout® Quantum Light Sensor (PAR Light)
3668I3	LightScout® Quantum Light 3 Sensor Bar
3668I6	LightScout® Quantum Light 6 Sensor Bar
3670I	LightScout® Silicon Pyranometer Sensor (Solar Radiation)
3676I	LightScout® UV Sensor



3415FX



3670I



3668I6

WatchDog Model 2475 Plant Growth Station

Ideal for Greenhouses - monitor microclimates with four sensor channels.

- Computes and displays Daily Light Integral (DLI), current light levels, dew point, degree day models, and chill hours
- Computes and displays DIF – Average day/night temperature difference
- Computes and displays VPD – Vapor Pressure Deficit
- Measure temperature, humidity and light conditions, plus 1 additional sensor port
- Check current conditions or 12 months of historical data on the LCD display
- Requires SpecWare™ software



3686WD WatchDog® Model 2475 Plant Growth Station

Plant Growth Report

Template: Plant Growth (DIF(DLI) w/VPD)								Equipment	North - Aspirated
Timestamp	VPD	PAR Hrs	DLI	Temp DIF	Day Mean Temp	Night Mean Temp	High	Low	
8/1/2017	.11	12.25	31.88	11.68	80.56	68.88	81.00	64.40	
8/2/2017	.81	12.75	34.32	10.76	78.82	67.86	89.70	80.40	
8/3/2017	.76	13.00	38.82	9.39	77.96	68.86	90.90	81.30	
8/4/2017	.65	12.75	17.02	7.10	77.48	70.36	84.20	86.68	
8/5/2017	.56	12.00	18.60	5.54	76.94	71.40	86.00	88.60	
8/6/2017	.77	12.25	29.72	7.86	77.82	69.97	86.90	88.20	
8/7/2017	.69	12.50	35.55	5.51	71.94	69.43	80.70	82.90	
8/8/2017	.56	11.50	26.58	5.58	73.30	68.71	83.00	84.10	
8/9/2017	.74	12.00	32.88	8.32	77.45	68.13	87.60	85.60	
8/10/2017	.71	13.00	32.82	9.51	78.95	68.54	89.40	85.80	

SpecWare plant growth report

WatchDog WeatherTracker Model 305 Greenhouse Growth Tracker

No computer necessary! Stand-alone device - LCD Display - no PC interface!

- Temperature sensor tracks degree-days without a computer
- Quantum light sensor measures your plants' light exposure over time (in moles/day) - displays current and cumulative DLI (Daily Light Integral)
- Computes and displays DIF – average day/night temperature difference
- Comprehensive tool to assess physiological maturity of your plants
- Stand-alone device – all information is shown on the LCD display
- One-button review of 30 days of values and 12 months of summaries
- 9V battery with 8-month life; memory protection in case of power loss



3501PAR WeatherTracker® Model 305 Greenhouse Growth



Displays Daily Light Integral (DLI) and Day/Night Temperature Difference on the LCD

FieldScout® TDR 150 & TDR 350 Soil Moisture Meter



FIELDSCOUT® TDR 350

Offering the proven time-domain measurement technology, the TDR 350 accurately measures soil moisture across the full range of soil conditions. Improved ergonomic design provides quick and easy measurements. Validate your cultural practices with hands free data collection integrated with Bluetooth and GPS.

- Measures soil moisture (Volumetric Water Content), Electrical Conductivity, and Turf Surface Temperature
- Integrated Bluetooth and GPS
- Industry exclusive backlit display
- Improved shaft-mounted probe with telescoping tubular frame
- Transfer data with USB flash drive - no PC connection needed
- Powered by 4 AA batteries (lithium included)
- Compatible with SpecConnect and FieldScout Mobile App
- Optional IR sensor to measure turf surface temperature



6435 TDR 350

Includes carrying case. Rods required and sold separately (Pg 36)

Note: Rods are required for TDRs to function

6435TS Infrared Temperature Sensor for TDR350 (Pg 36)

6435SP Rod Spacer for 0.5" and 1" depths (Pg 36)

SPECIFICATIONS FOR TDR SOIL MOISTURE METERS

VWC Range: 0% to saturation, Resolution: 0.1%, Accuracy: $\pm 3.0\%$ VWC

EC Range: 0 to 5 mS/cm, Resolution: 0.01 mS/cm, Accuracy: $\pm 0.1\%$ mS/cm

Temperature Range: -22° to 140°F (-30° to 60°C), Resolution: 0.1°, Accuracy: $\pm 1.8\%$ F (1°C)

IR Temperature Range: 32° to 140°F (0° to 60°C), Resolution: 0.2°F (0.1°C), Accuracy: $\pm 0.2\%$ F(0.1°C)

SpecConnect Web Portal showing TDR 350 data



SMARTIRRIGATION:

Maximize Irrigation Audits with TDR

FIELDSCOUT® Bluetooth™

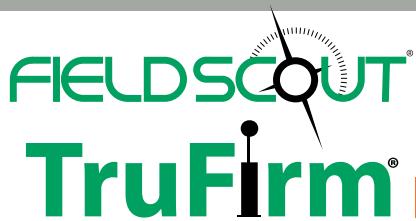
Available on the
App Store

GET IT ON
Google Play

FIELDSCOUT MOBILE APP

Capture and analyze measurements on your turf using Bluetooth wireless technology on our FieldScout TDRs 350, 300, 150 and Trufirm.

- Visualize field readings in real time and e-mail relevant information
- Upload to SpecConnect Web Portal and view your entire course's data at once and export for further analysis (Pro Features)
- Color-coded to represent a scale of turf firmness, moisture, surface temperature and EC
- Free download from App store or Google Play
- Works on iOS and Android devices



Supported with
USGA
Developed Technology

LOWER PRICE

Based on technology developed by the United States Golf Association (USGA), 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 researchers and turf management professionals to measure the relationship between the compaction of the soil and the moisture level, in order to quantify playing conditions.

- View measurement on LCD Display
- Evaluate trends and monitor sections of turf relative to one another
- With FieldScout® Mobile App, instantly see your data on your smartphone or tablet
- The lower the value, the firmer the turf or surface
- Measures depth of travel in inches (range 0.1 in-1.5 in)
- Logged data can be sent via Bluetooth to a iOS or Android device for plotting specific greens or other surfaces
- Includes soft-sided carrying case

6490S **FieldScout® TruFirm® Turf Firmness Meter** **PRICE REDUCTION**
with Bluetooth LE



SPECIFICATIONS FOR TRUFIRM

Range: 0.1 in - 1.5 in (2.54 mm - 38.1 mm)
Resolution: 0.01 in at 1.00 in - 1.50 in (0.25 mm at 25.4 mm - 38.1 mm)
0.003 in at 0.00 in - 0.999 in (0.076 mm at 0 mm - 25.4 mm)
Diameter of Hammer: 1.68 in (4.45 cm)
Height: 27 in (69 cm)
Weight: 4.3 lb (1.95 kg)
Measurement Units: Depth of travel (inches)
Power: 2 AA batteries (included)

FieldScout Mobile App

FREE

3035A	SpecConnect FieldScout Pro Subscription (1-yr)	1-3 Devices
3035B	SpecConnect FieldScout Pro Subscription (1-yr)	4-7 Devices
3035C	SpecConnect FieldScout Pro Subscription (1-yr)	7+ Devices
6453BT	FieldScout Bluetooth Device for TDR 300	



FIELDCOAT MOBILE APP BASIC vs. PRO

	Basic	Pro
Basic Grid of Zones	✓	✓
Change Number of 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® TDR 150 & Accessories

FIELDSCOUT® TDR 150 Soil Moisture Meters

Portable soil moisture meter allows you to obtain readings on the go at the press of a button. Variable rod length options provide soil moisture measurements at your ideal root zone. With new enhancements, the TDR 150 provides significant improvements in performance and measurement accuracy for optimal turf and soil environments.

- Increased accuracy of soil moisture (Volumetric Water Content)
- Measures EC (Electrical Conductivity)
- Measures Turf Surface Temperature
- Option to add on Bluetooth and GPS
- Data logger records approximately 50,000 measurements
- Industry exclusive backlit display
- Data collected with USB flash drive
- Powered by 4 AA lithium batteries, (lithium included)
- Ideal for measuring containers on benches
- Optional IR Temp sensor to measure canopy or turf temperature

Note: Rods are required for TDRs to function

6445	TDR 150 Includes carrying case. Rods sold separately (below)
6445TS	Infrared Temperature Sensor-TDR 150
6435SP	TDR Rod Spacer (1" & 1/2" depth)
6445GBU	Bluetooth and GPS Upgrade
6445S	Replacement TDR 150 Probe Block



TDR Rods

Multiple depth options for varying root zones.

- Sturdy stainless-steel construction
- Field replaceable

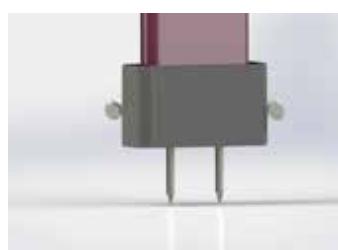
NOTE: Required for TDRs to function. Must be fully inserted for valid measurements.

6428FS4	Two 1.5 inch (3.8 cm) Rods
6429FS4	Two 3 inch (7.5 cm) Rods
6431FS4	Two 4.8 inch (12 cm) Rods
6432FS4	Two 8 inch (20 cm) Rods
6430PH	Pilot Hole Maker for TDR Meters Includes two 3 inch (7.5 cm) rods



TDR Spacers - NEW!

- Measure Soil Moisture at 0.5 " to 1"
- Expand the measurement range of our FieldScout TDR Soil moisture probes
- Using 1.5" (3.9 cm) rods, the TDR Rod Spacer enables easy measurement of 0.5" and 1" depths
- Flip to switch between the two depths
- Easily attach and detach from any Spectrum TDR meters



FOR TDR350/TDR150

6435SP Rod Spacer

FOR TDR300/TDR 100 with serial numbers 20000 or greater (firmware v7.0 and later)

6430SP Rod Spacer and Software Activation

FOR TDR300/TDR100 with serial numbers less than 20000 (firmware v6.9 and earlier)

6430SPU Rod Spacer and Activation Processor

Infrared Temperature Sensor

6435TS	Infrared Temperature Sensor for TDR350
6445TS	Infrared Temperature Sensor for TDR150

- Predict turf wilt with higher accuracy
- Easily correct a moisture deficit earlier and reduce heat stress to the green
- Quickly and accurately monitor canopy and soil temperatures
- Use IR temperature real-time
- Easy installation to our FieldScout TDR350 and TDR150

FieldScout® Soil Compaction Meters



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

- Includes 1/2 in and 3/4 in cone tip
- Takes compaction readings every inch from 0 to 18 in (45 cm)
- Exclusive ultrasonic depth sensor captures readings in 1 in (2.5 cm) increments
- Penetration resistance measured by internal load cell
- Compaction data is displayed in PSI or kPa (1 psi = 6.9 kPa)
- 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 Spec Connect for maps of compaction by depth, or depth to hard pan layer. See pages 6-7 & 34-35 for SpecConnect FieldScout subscriptions.
- Includes USB cable, carrying case, and depth target

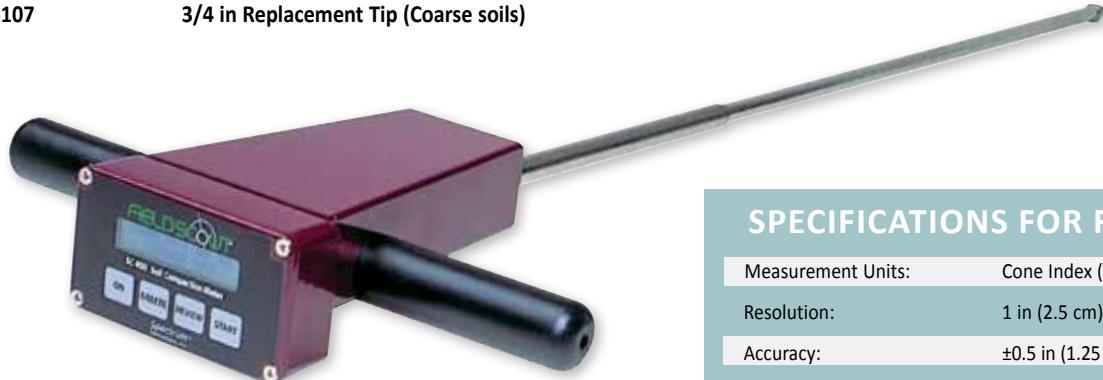
* GPS interface requires two cables. The GPS/DGPS cable (item 2950CV5) is available from Spectrum. A PC serial interface cable supplied by the manufacturer of the GPS receiver is also required.

** PC cable connects to a computer USB port. See our website for other cable connection options.



FieldScout SC 900

6110FS	FieldScout® SC 900 Soil Compaction Meter
2950CV5	GPS/DGPS Cable
7250	GPS Unit Mounting Bracket
6110FST	Replacement Depth Target
6106	1/2 in Replacement Tip (Fine soils)
6107	3/4 in Replacement Tip (Coarse soils)



SPECIFICATIONS FOR FIELDSCOUT SC 900

Measurement Units:	Cone Index (PSI or kPa)
Resolution:	1 in (2.5 cm), 5 PSI (35 kPa)
Accuracy:	±0.5 in (1.25 cm) Depth, ±15 PSI (103 kPa) Pressure
Range:	0 to 18 in (0 to 45 cm), 0 to 1,000 PSI (0 to 7,000 kPa)
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 in (60 cm) in 3 in (7.6 cm) increments

6120	Soil Compaction Tester
6121	1/2 in Replacement Tip (Fine Soils)
6122	3/4 in Replacement Tip (Coarse Soils)





Actual size



SM 100 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 soilless media
- Installs easily into 3/4 in (1.9 cm) hole
- Install permanently or use to take spot measurements
- Can be read with the FieldScout® Soil Sensor Reader (Item 6466) or WatchDog® 2000, 1000 Series Stations, and WatchDog Pups
- Connect up to 8 sensors to one station
- WaterScout Calibration Device can be used to reset the baseline reading

6460

WaterScout® SM 100 Sensor - 6 ft (1.8 m)

6460-20

WaterScout SM 100 Sensor - 20 ft (6 m)

6470CAL3V

WaterScout Calibration Device

SPECIFICATIONS FOR WATERSCOUT SM 100 SENSOR

Standard Interface: WatchDog weather station, Pups, and FieldScout soil moisture reader

Range: 0% VWC to saturation

Power Requirements: 3 to 5V @ 6 to 10 mA

Output: Analog voltage 0.5 - 1.5V for a 3V excitation (ratiometric for other excitation voltages)

Resolution: 0.1% VWC

Cable Length: 6 ft (1.8 m) and 20 ft (6 m) standard, extendable up to 50 ft (15 m)

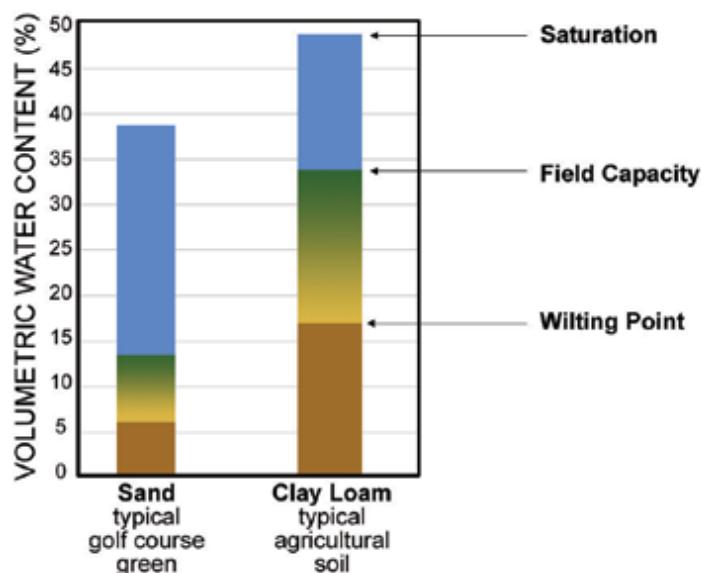
Accuracy: 3% VWC @ EC < 8 mS/cm

Sensing Area: 2.4 in (6 cm) x 0.8 in (2 cm)



Shown measuring in soilless media mode to gather immediate data

Water Holding Capacity By Soil Type





SMEC 300 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)
- Easy, 1-step EC calibration process
- Can be read with the FieldScout® Soil Sensor Reader (Item 6466) or WatchDog® 2000, 1000 Series Stations, and WatchDog Pups
- Connect up to 4 sensors per station
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 (Item 6466)

WatchDog Stations sold prior to 2012 must be upgraded (Contact for support)

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



Actual size

SPECIFICATIONS FOR WATERSCOUT SMEC 300

Standard Interface:	WatchDog weather station, Pups, and FieldScout soil moisture reader
Range:	VWC: 0% VWC to saturation, EC: 0 to 10 mS/cm, Temp: 33 - 175°F (0.5 - 80°C)
Resolution:	VWC: 0.1%, EC: 0.01 mS/cm, Temp: 0.1°F (0.1°C)
Accuracy:	VWC: 3%, EC: ±2%, Temp: ±1°F (0.6°C)
Cable Length:	6 ft (1.8 m) and 20 ft (6 m) standard, extendable up to 50 ft (15 m)
Power Requirements:	3V @ 6 to 10 mA
Output:	Analog voltage, time division multiplexed
Sensing Area:	2.25 in. x 0.75 in. (5.7 x 2 cm)

FIELDSCOUT® Soil Sensor Reader

Spot-check WaterScout SM 100 and SMEC 300 sensors in the field.

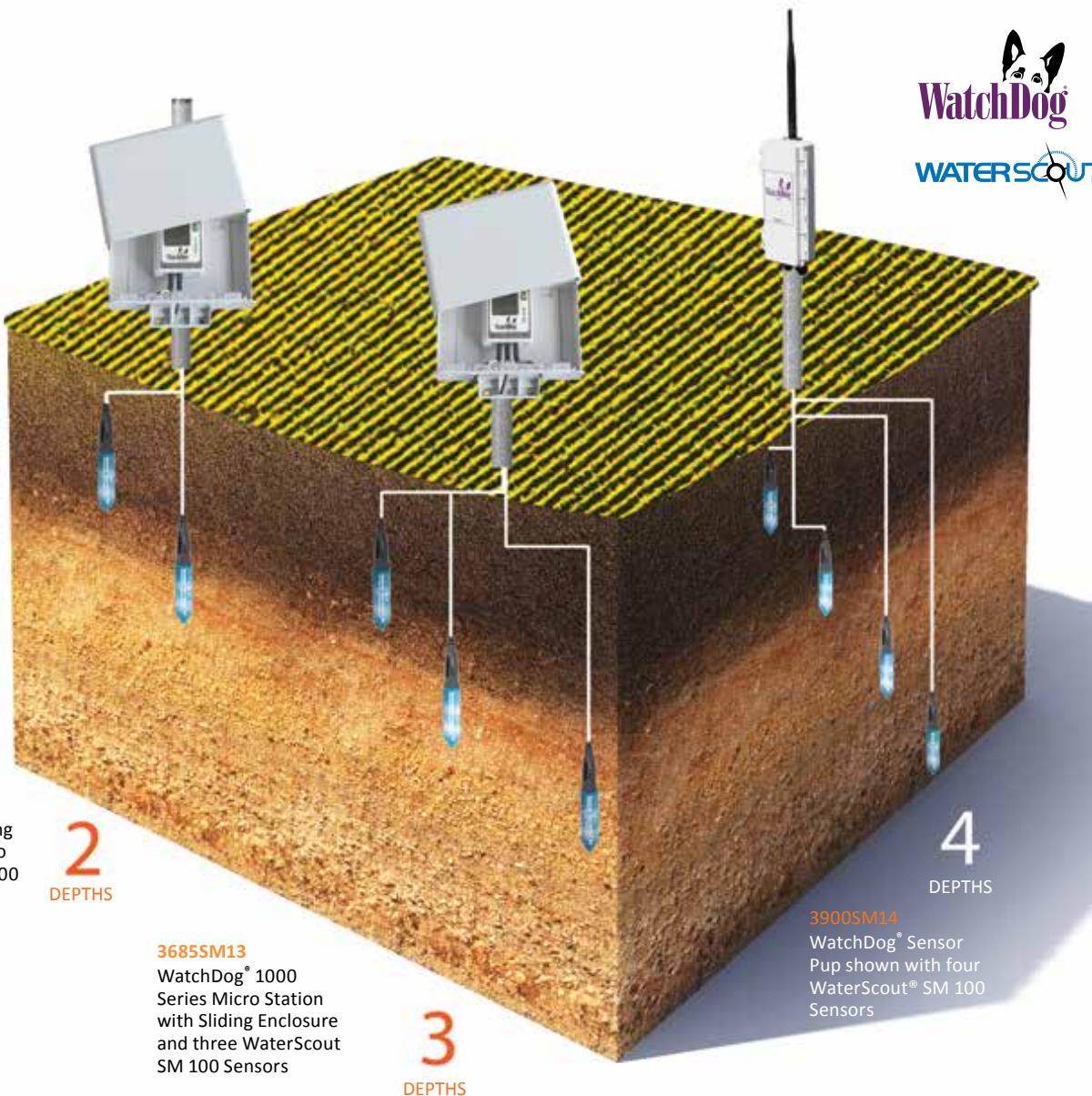
- Also reads Watermark sensors (page 41) (requires separate adapter)
- Includes soft-sided case (also available separately)

6466	FieldScout® Soil Sensor Reader
6450FSADPT	Watermark Adapter for Soil Sensor Reader
7500	Soft-Sided Carrying Case*

* Item 7500 will also fit the WatchDog 1000/2000 Series Data Shuttle (Item 3679WD), LightScout Red/Far-Red Meter (Item 3412), LightScout Quantum Light Meters (four models) and the LightScout External Light Sensor Reader (Item 3415FX)



WatchDog® IRRIGATION STATIONS



WatchDog® Irrigation Stations with WaterScout® Sensors 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 ft (6 m) 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 ft (3.3 m) 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 9 Basic or Pro software
- **Buy them together and save!**

	MODEL 1200 MICRO STATION	MODEL 1400 MICRO STATION	SENSOR PUP IRRIGATION STATION		MODEL 1200 MICRO STATION	MODEL 1400 MICRO STATION
2 WaterScout SM 100 Soil Moisture Sensors	3680SM12	3685SM12	3900SM12	2 Watermark Soil Moisture Sensors	3680WM12	3685WM12
3 WaterScout SM 100 Soil Moisture Sensors		3685SM13	3900SM13	3 Watermark Soil Moisture Sensors		3685WM13
4 WaterScout SM 100 Soil Moisture Sensors		3685SM14	3900SM14	4 Watermark Soil Moisture Sensors		3685WM14



Watermark Soil Moisture Sensor

Economical way to measure soil moisture tension.

- Works with FieldScout® Soil Sensor Reader (Item 6466, page 39)
- Reads moisture tension from 0 (saturated) to 200 (dry) centibars

6450 Watermark Sensor with 5 ft (1.5 m) cable
6450FSADPT Watermark Adapter for Soil Sensor Reader

Watermark Sensors for WatchDog® Weather Stations

6450WD Watermark Sensor for WatchDog® Stations & Pups with 11 ft (3.3 m) cable
6450WD20 Watermark Sensor for WatchDog® Stations & Pups with 25 ft (7.6 m) cable
6450AH Watermark Adapter for WatchDog® Stations & Pups



Irrometer Tensiometers

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

- “R” models (items 6419 thru 6423) are for general use with field or tree crops
- Low Tension (LT) models (see www.specmeters.com) are for coarse soils or soilless media
- Portable models for specialized applications (see www.specmeters.com)
- Can be connected to WatchDog® Data Loggers and Stations with Pressure Transducer (Item 3669)
- Pressure gauge has a quarter inch pipe thread
- Service kit required (Item 6425)

6425 Service Kit - Required

6419 R Model 6 in (15 cm) Depth
6420 R Model 12 in (30 cm) Depth
6421 R Model 18 in (45 cm) Depth
6422 R Model 24 in (60 cm) Depth
6423 R Model 36 in (90 cm) Depth

- Connect your “R” model (Items 6419 thru 6423) tensiometer to your weather station. The Pressure Transducer adapts to Irrometer tensiometers and allows use of the dial gauge for in-field measurements

3669 Pressure Transducer



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 in (22 cm) Soil Moisture Tester
6405 24 in (60 cm) Soil Moisture Tester

LAQUA twin



Put the power of a laboratory right in your hands.

- Professional grade meters
- Measure samples in nutrient solutions, water, soils, and tissue sap (Two plant sap press options available on page 44)
- 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 0.3 ml
- Automatic temperature compensation, waterproof, auto power-off
- Includes two CR2032 batteries, case and calibration standards



LAQUA Twin pH Meter

Ideal for testing irrigation water, leachate, pesticides, or dairy rumen pH.

2103ALP

LAQUA Twin pH meter

Includes case, batteries, and pH 4 & 7 standards

2110

Refill Solutions - pH 4 and 7, 60 mL ea.

2143L

LAQUA Twin pH Replacement Sensor

2135L

Sampling Sheets - 100 pieces

LAQUA Twin EC Meter

Ideal for water quality and greenhouse applications.

2205LP

LAQUA Twin EC Meter

Includes case, batteries, and calibration standards

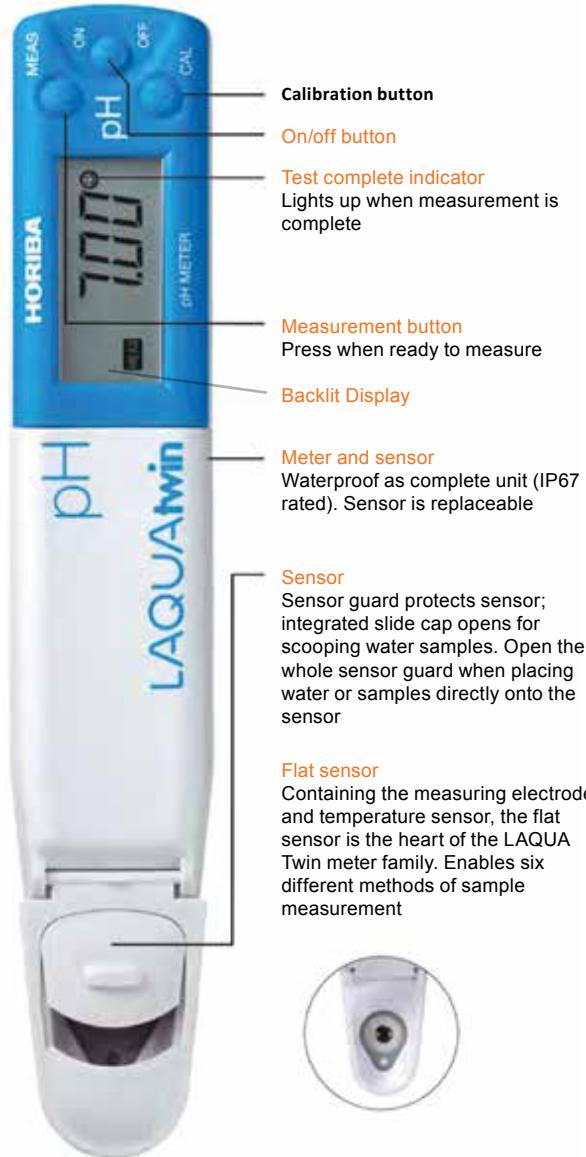
2210L

Conductivity Standard, 1.41 mS/cm

(6 - 14 mL bottles)

2242L

Replacement Sensor





	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 2.0 mL
Measurement Range:	2 to 12 pH	0 to 19.9 mS/cm	23 to 2300 ppm	39 to 3900 ppm	62 to 6200 ppm	40 to 4,000 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 Sodium Na⁺

2500GL	LAQUA Twin Sodium (Na⁺) Meter
	Includes case, batteries, and calibration standards
2540L	Replacement Sodium Sensor
2514L	150 ppm Na⁺ Standard, 6 - 14 mL bottles
2518L	2000 ppm Na⁺ Standard, 6 - 14 mL bottles
2535	Na⁺ Soil Test Kit w/30 Samples
	Includes 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	150 ppm K⁺ DI Standard, 6 - 14 mL bottles
2418L	2,000 ppm K⁺ DI Standard, 6 - 14 mL bottles
2434	K⁺ Soil Test Kit w/30 Samples
	Includes solutions, filter paper, cups, and soil scoop
2135L	Sampling Sheets - 100 pieces



LAQUA Twin Nitrate NO₃⁻

2305GL	LAQUA Twin Nitrate (NO₃⁻) Meter
	Includes case, batteries, and calibration standards
2345L	Replacement Nitrate Sensor
2311	450 ppm NO₃⁻-N Standard, 6 - 14 mL bottles
2312	34 ppm NO₃⁻-N Standard, 6 - 14 mL bottles
2330	NO₃⁻ Soil Test Kit w/30 Samples
	Includes solutions, filter paper, cups, and soil scoop
2135L	Sampling Sheets - 100 pieces

LAQUA Twin Calcium Ca²⁺

2450L	LAQUA Twin Calcium (Ca²⁺) Meter
	Includes case, batteries, and calibration standards
2455L	Replacement Calcium Sensor
2460L	150 ppm Ca²⁺ Standard, 6 - 14 mL bottles
2461L	2000 ppm Ca²⁺ Standard, 6 - 14 mL bottles
2135L	Sampling Sheets - 100 pieces



2726

Handheld Plant Sap Press

- Use with LAQUA Twin meters or Brix meters (see below) for on-site testing
- Made of high quality, non-corrosive metal
- Includes cleaning device

2726

Hand Held Plant Sap Press



2720

Hydraulic Plant Sap Press

- Speed up collection of large or less succulent samples
- Hydraulic press extracts sap into a collection vial
- Includes plunger, grate, cylinder, expeller rod and six collection vials

2720

Hydraulic Plant Sap Press



2812

Digital Refractometer

Easy and convenient way to measure Brix.

- Small sensor area allows measurement of minute samples
- Measures Brix from 0 to 53.0% (Accuracy $\pm 0.2\%$)
- Automatic temperature compensation
- Large digital display of Brix and temperature
- Operates on two AAA batteries (included)

2812

Digital Refractometer



Handheld Refractometers

Compact meter ideal for field or lab use.

- Measures Brix from 0 to 32.0% (Accuracy $\pm 0.2\%$)
- Place a couple drops of sample on the scale and read the results in Brix through the shaded area on the eyepiece
- Available with or without automatic temperature compensation
- Includes case and instructions

2801

Refractometer 0-32% Brix

2806

Refractometer 0-32% with Automatic
Temperature Compensation

pH & EC Meters



SoilStik pH Meter

Easy to use and cost-efficient meter.

- Flat surface electrode measures pH in soils, semi-solids, solids, and liquids
- RENEW indicator tells you when it's time to replace your electrode - eliminates guesswork
- CAL alert tells you it's time to recalibrate to ensure accuracy
- Memory records and recalls 15 sequentially tagged readings, allowing detection of changes over time
- 1- or 2-point calibration: automatically recognizes buffer solutions
- Automatic temperature compensation
- Simultaneous display of pH and temperature
- Display indicates when the reading has stabilized
- Data Hold, auto power off, and low battery indication
- Water resistant design (IP57) floats in water and protects the meter in wet environments
- Includes protective sensor cap, rinse bottle, two CR2032 batteries, pH 4 & 7 standard solutions, and soft case

2105 FieldScout® SoilStik pH Meter

2106 Flat Sensor, Replacement

2110 Refill Solutions - pH 4 and 7, 60 mL ea.



Measuring the pH of the pesticide spray solution or fertilizers is important to ensure performance.



SoilStik shown in use with Item 6510
Model HC Soil Sampler (available online)

SPECIFICATIONS FOR SOILSTIK pH METER

pH: 0.00 to 14.00 pH

Temperature: 23°F to 194°F (-5°C to 90°C)

Resolution: 0.01 pH, 0.1°

Accuracy: ± 0.01 pH, $\pm 1.8^\circ\text{F}/\pm 1^\circ\text{C}$

Dimensions: 1.4 x 6.8 x 1.6 in (35.6 x 172.7 x 40.6mm)

Weight: 3.8 oz (110 g)

Flat end electrode works in liquids, semi-solids, and soils



pH 400 and 600 Meters

Fast, easy and accurate "direct" soil pH measurement.

Modern User Interface

- The FieldScout pH 400 & 600 Meters have a modern, intuitive, and user friendly interface that allows users to quickly access the meter's advanced features and settings
- Temperature and pH data remain visible, so monitoring does not stop when settings are changed or options are selected
- Large backlit 3.2" LCD color display ensures measurement values and menu options are easy to read

Rugged and Ergonomic Design

- Both the FieldScout pH 400 & 600 Meters are lightweight, and their compact design makes them highly suitable for field use and handheld applications.
- Dust and splash resistant – IP65 rating
- Meters are fitted with a rubber boot to help absorb shock
- The USB port is protected by a tightly sealed cover and the casing and battery door are fitted with rubber seals
- 1 year warranty on meter

ISFET (Ion Sensitive Field Effect Transistor) Probes

Glass Free and Durable Probe - 2 Options to Fit Your Needs

- Unlike glass electrodes, the FieldScout 400 and 600 pH Meters feature ISFET pH electrodes that will not shatter. Neither model requires wet storage
- Both come with a 6-month warranty
- Spectrum ISFET probes are made of high quality materials such as PEEK, ABS, and PVC
- Sample directly in plug trays, pots, containers, solutions, and soilless media

2107	FieldScout pH 400 Meter Meter includes case, batteries, AC adapter, brush, and pH 4 & 7 standards *Does not include pH Probe - order separately below
2108	FieldScout pH 600 Meter Meter includes case, batteries, AC adapter, brush, and pH 4 & 7 standards *Does not include pH Probe - order separately below
2127	FieldScout pH Meter Blunt Tip ISFET Probe
2128	FieldScout pH Meter Pin Point Tip ISFET Probe
2110	Refill Solutions - pH 4 and 7, 60 mL each



Robust probe design makes it easy to go from sample to sample



pH 400

- Professional grade quality
- Intelligent calibration wizard simplifies the calibration process
- Supports 1-and 2-point calibration
- Powered by 3 rechargeable AA-batteries (AC adapter included)



pH 600

Includes all features of the FieldScout pH 400 Meter, plus...

- Internal storage of measured data points, up to 65,000 measurements
- Ability to query both momentary pH value and temperature
- Supports up to 5-point calibration



Pin Point Tip ISFET Probe

- Uses patented non-glass ISFET technology for the smallest pH measurement
- Sharp and to the point for pH measurement of materials that need to be penetrated
- Eliminates clogging from dirty samples or semi-solids



Blunt Tip ISFET Probe

- Uses patented non-glass ISFET technology for general purpose pH measurement
- Ideal for liquids, hydroponics, and soilless media



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 19.9 mS/cm (Accuracy $\pm 1\%$, resolution 0.01 mS/cm)
- Automatic temperature compensation, long lasting, and waterproof
- Includes battery and EC calibration standard

8 in (20 cm) Probe Option

2265FS	FieldScout® Direct Soil EC Meter w/ 8 in Probe Includes Carrying Case and 2.76 Standard
2265PROBE	FieldScout EC 8 in Probe (Replacement)
2254	Conductivity Standard, 2.76 mS/cm, 250 mL
2251	Conductivity Standard, 1.41 mS/cm, 250 mL

24 in (60 cm) Probe Option

2265FSTP	FieldScout Direct Soil EC Meter w/ 24 in T-Handle Probe and Replaceable Tip
2265FST24P	FieldScout T-Handle EC 24 in Probe w/ Replaceable Tip
2266	Replaceable Tip For T-Handle EC Probe
2254	Conductivity Standard, 2.76 mS/cm, 250 mL
2251	Conductivity Standard, 1.41 mS/cm, 250 mL



FieldScout Direct Soil EC
Meter with 24 in (60 cm)
T-Handle



Exclusive Paired Sensor

Waterproof



Waterproof EC Meter

Economic meter for measuring salinity.

- Measures four parameters; conductivity, TDS, salinity, and temperature
- 6 units of measurement: $\mu\text{S}/\text{cm}$, mS/cm , ppm, ppt, mg/L , and g/L
- Internal memory stores up to 15 labeled readings for easy recall
- Adjustable conductivity-to-TDS ratio factor (0.4 to 1.0)
- Accuracy: $\pm 2\%$
- Automatic temperature compensation
- Measurement ranges:
 - Conductivity: 0.00 to 199 $\mu\text{S}/\text{cm}$, 200 to 1,999 $\mu\text{S}/\text{cm}$, or 2.00 to 19.99 mS/cm
 - TDS: 0 to 99.9 mg/L , 100 to 999 mg/L , or 1.00 to 9.99 g/L
 - Salinity (fixed ratio of 0.5): 0 to 99.9 ppm, 100 to 999 ppm, or 1.00 to 9.99 ppt
 - Temperature: 32 to 194°F (0.0 to 90.0°C)
- Includes conductivity cell, protective sensor cap, sample cup with cap, four SR44W button batteries, and 48 in (1.2 m) neckstrap
- Calibration standard sold separately

2246

Waterproof EC Meter

2246SENSOR

Replacement Sensor

2251

Conductivity Standard, 1.41 mS/cm, 250 mL

Economical



Economy pH/EC Meter

Affordable way to monitor pH and EC levels in any liquid.

- Combination pH and electrical conductivity (EC) probe
- 150-hour battery life
- Automatic temperature compensation
- 0.68 TDS ratio calculation
- Accuracy: ± 0.2 pH and 2% EC scale
- Range: 0 - 6 mS/cm
- Includes handheld meter, probe, calibration solutions, and carrying case

2182A

Economy pH/EC Meter

2183A

Replacement pH/EC Probe

2110

Refill Solutions - pH 4 and 7, 60 mL ea.

2251

Conductivity Standard, 1.41 mS/cm, 250 mL

Green = Nitrogen > Chlorophyll Meters

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

SPAD 502 Plus Chlorophyll Meter

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 N content
- Available with or without a built-in data logger
- Includes hard carrying case and batteries

Data-Logging Model (2900PDL)

- 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.

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

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

2950CV5 GPS/DGPS Cable
2900CASE Hard Carrying Case



SPECIFICATIONS FOR SPAD 502 PLUS

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

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

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

Non-invasive measurement with readings in less than 2 seconds

FIELDSCOUT® CM 1000 Chlorophyll Meter

“Point-and-shoot” technology to instantly measure relative chlorophyll content.

- Detects stress earlier than visual monitoring
- Technology based on an exclusive patent license from NASA
- 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 added GPS/DGPS option)
- Configure and download meter with FieldScout® software (not included)**
- Includes hard carrying case and batteries

* 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.



2950

2950	FieldScout CM 1000 Chlorophyll Meter
2950S	Software To Activate Data Logger (includes PC cable)
2950CV5	GPS/DGPS Cable



FIELDSCOUT® 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 added GPS/DGPS option)
- Configure and download meter with FieldScout® software (included)**
- Includes hard carrying case and batteries

* 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.

2953	FieldScout CM 1000 NDVI Meter
2950CV5	GPS/DGPS Cable



2953



FIELDSCOUT TCM 500 NDVI Turf Color Meter



Helps diagnose plant health based on color.

- Measures reflected light from approximately a 3 inch (7.6 cm) diameter section of turfgrass
- Uses an internal light source to negate the effect of sunny versus 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*
- Equipped with internal data logger and RS-232 port
- Records 3,250 measurements (1,350 with added GPS/DGPS option)
- Configure and download meter with FieldScout® software (included)**
- Includes hard carrying case, batteries, and TCM 500 T-Handle (item 2975H)

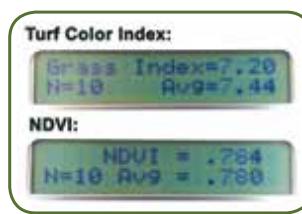
* GPS interface requires two cables. The GPS/DGPS cable (item 2950CV5) is available from Spectrum. A PC serial interface cable supplied by the manufacturer of the GPS receiver is also required.

** PC cable connects to a computer USB port. See our website for other cable connection options.



2975NDVI	FieldScout TCM 500 NDVI Turf Color Meter
	Includes TCM 500 T-Handle
2975H	FieldScout TCM 500 Replacement T-Handle
2950CV5	GPS/DGPS Cable

SPECIFICATIONS FOR TCM 500	
Measurement Sample:	Turf grass canopy
Measurement System:	Reflectance of red (660 nm) and NIR (850 nm) light
Measurement Area:	Approx. 3.0 in (7.6 cm)
Measurement Units:	Percent reflectance (0.0 to 99.9) of Red and NIR
NDVI (0.000 to 1.000)	
Grass Index (1.00 to 9.00)	
Power Source:	1 9 V alkaline battery (included); approx. 3,000 measurements
Repeatability:	± 5% of measurement



Displays Turf Color Index and NDVI on the LCD



Headquarters located at:
3600 Thayer Court
Aurora, Illinois 60504
USA

Phone: 1 (815) 436-4440
info@specmeters.com
www.specmeters.com

Distributed world-wide.

Distributed By:



WIRELESS RAIN COLLECTOR
LEARN MORE @
www.specmeters.com

It rained last night.

What fields received rain and how much? View real-time rain activity on your smartphone.

www.specmeters.com

