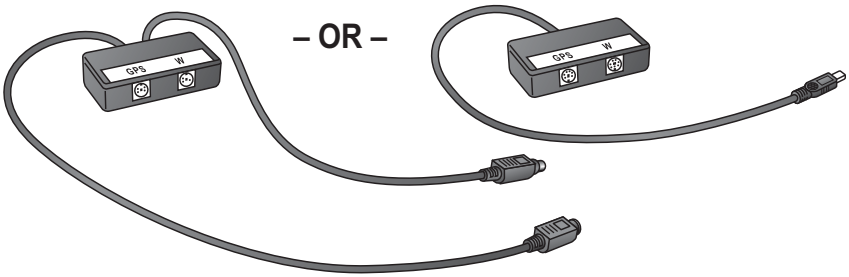
GPS/Wireless System Installation Manual

DriveRight®

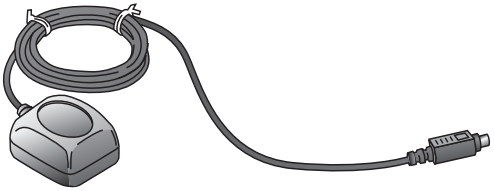
GPS/Wireless Interface Module # 8127

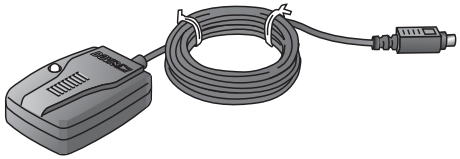
carchip FLEET PRO

GPS/Wireless Interface Module # 8251



GPS Module # 8128





Wireless On-Board Module # 8129

For:

- GPS/Wireless Interface Module ***for DriveRight (# 8127) OR***
- GPS/Wireless Interface Module ***for CarChip Fleet Pro (# 8251)***

AND

- GPS Module ***(# 8128)***
- Wireless On-Board Module ***(# 8129)***

DAVIS® **Davis Instruments** 3465 Diablo Ave., Hayward, CA 94545-2778 USA
(510) 732-9229 • FAX (510) 670-0589 • sales@davisnet.com • www.davisnet.com

Regulatory Compliance

E Mark

This product complies with the essential protection requirements of the EC EMC Vehicle Directive 95/54/EC.

CE EC EMC Compliance

This product complies with the essential protection requirements of the EC EMC Directive 89/336/EC.

FCC Part 15.247

FCC ID: OUR-XBEEPRO

IC RSS-210

IC ID: 4214A-XBEEPRO

FCC Part 15 Class B Registration Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modification not expressly approved in writing by Davis Instruments may void the warranty and void the user's authority to operate this equipment.

For Products: # 8127, # 8128, # 8129, # 8251 Rev. E (6/8/11)

GPS/Wireless System Installation Manual Document Number: 7395.221

Davis Instruments®

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GPS/Wireless System Installation Manual

This manual provides the instructions necessary to install the GPS Module (# 8128), and the Wireless On-Board Module (# 8129) with your DriveRight® 600E device using the DriveRight GPS/Wireless Interface Module (# 8127) or with your CarChip® Fleet Pro using the CarChip Fleet Pro GPS/ Wireless Interface Module (# 8251).

The DriveRight GPS/Wireless Interface Module (# 8127) connects the GPS and/or Wireless On-Board Modules to a DriveRight 600E device. The CarChip Fleet Pro GPS/Wireless Interface Module (# 8251) connects the GPS and/or Wireless On-Board Modules to a CarChip Fleet Pro.

Refer to the *DriveRight 600E User's Guide*, or *CarChip Fleet Pro User's Guide*, and the *DriveRight Fleet Management Software Online Help* for more information on configuring and using these components.

Note: GPS data collection must be enabled in the DriveRight or CarChip device prior to installation in the vehicle via the DriveRight Fleet Management Software (FMS).

The Wireless On-Board Module must be configured in the Fleet Management Software (FMS) before installation in a vehicle.

See the *FMS Online Help System* for information on configuring both of these modules.

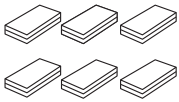
The components necessary for a GPS/Wireless System installation in a vehicle differ based on the monitoring device with which the components are paired.

Device	GPS/Wireless Interface Device	GPS Device	Wireless Device
DriveRight 600E # 8126	DriveRight GPS/ Wireless Interface Module # 8127*	GPS Module # 8128	Wireless On-Board Module # 8129
CarChip Fleet Pro # 8246	CarChip GPS/ Wireless Interface Module # 8251*	GPS Module # 8128	Wireless On-Board Module # 8129

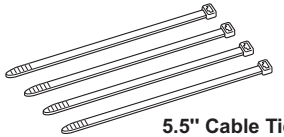
**Requires one # 8127 GPS/Wireless Interface Module (for DriveRight installations) or one # 8251 f(or CarChip Fleet Pro installation) per vehicle.*

Components and Mounting Hardware

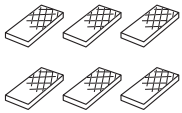
The following mounting hardware kit is included with either the DriveRight GPS/Wireless Interface Module (# 8127) or CarChip Fleet Pro GPS/Wireless Interface Module (# 8251) and can be used with all the components in the GPS /Wireless System:



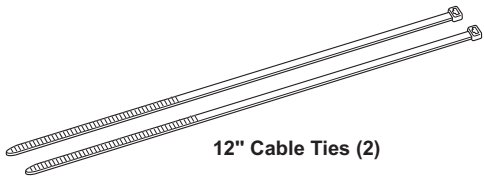
Velcro® Tape (6 pair)



5.5" Cable Ties (4)

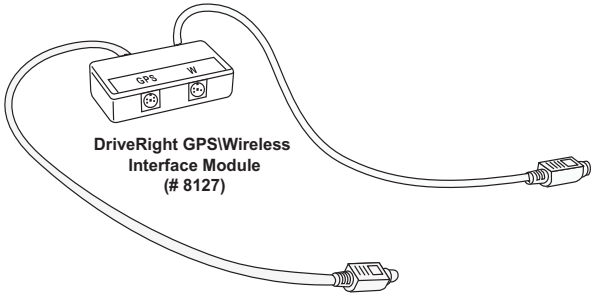


Double-Sided
Foam Tape (6 strips)



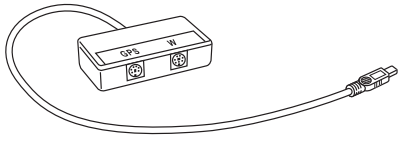
12" Cable Ties (2)

The GPS/Wireless Interface Module for DriveRight (# 8127) or the GPS/ Wireless Interface Module for CarChip Fleet Pro (# 8251) should come with the mounting hardware (above) and one of the components shown below:



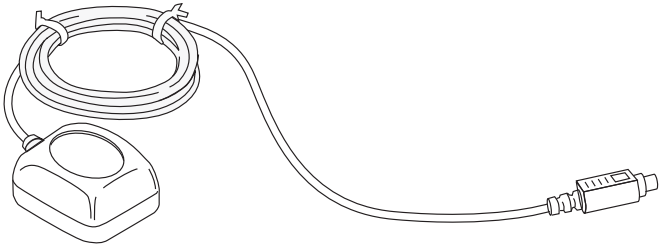
DriveRight GPS\Wireless
Interface Module
(# 8127)

-OR-



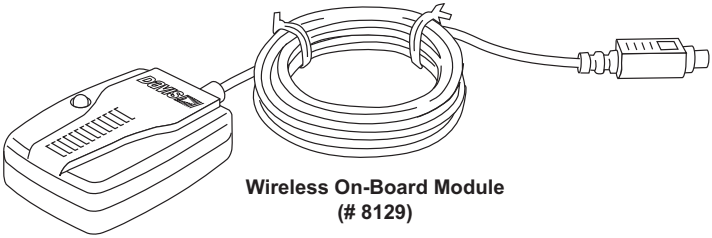
CarChip GPS/Wireless
Interface Module
(# 8251)

The GPS Module (# 8128) is sold separately and comes with the component shown below:



GPS Module
(# 8128)

The Wireless On-Board Module (# 8129) is also sold separately and comes with the component shown below:



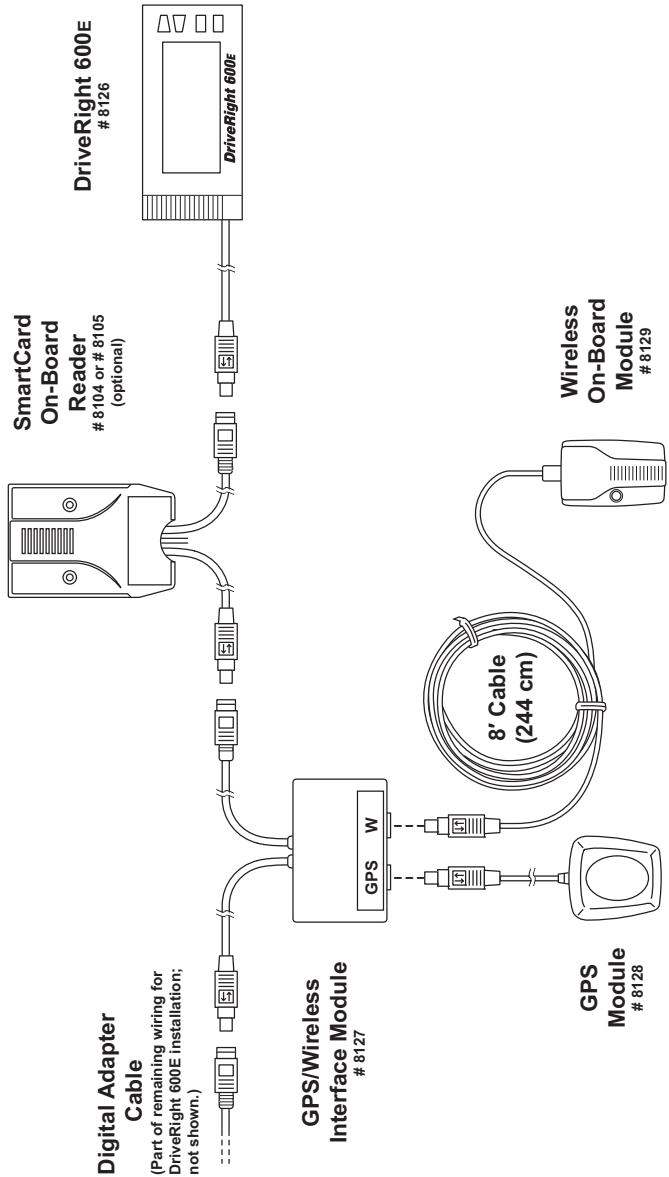
Wireless On-Board Module
(# 8129)

Both the GPS Module and Wireless On-Board Module work with both GPS/Wireless Interface Modules shown on the previous page.

DriveRight GPS/Wireless Wiring Diagram

The following wiring diagrams display all the possible wiring solutions for connecting the GPS/Wireless Interface Module, GPS Module, and Wireless On-Board Module to an existing DriveRight 600E system.

Wiring the GPS/Wireless System with a DriveRight 600E



Making Connections

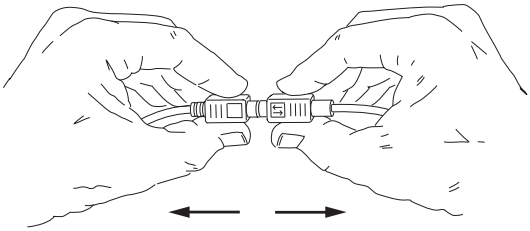
The GPS/Wireless Interface Module for DriveRight can be installed with either the GPS Module, the Wireless On-Board Module or both. The instructions below assume an installation involving all three modules.

Modify your own installation as necessary.

1. Connect the GPS Module to the GPS/Wireless Interface Module by plugging the male connector of the GPS Module cable into the socket labeled “GPS” on the GPS/Wireless Interface Module.
2. Connect the Wireless On-Board Module to the GPS/Wireless Interface Module by plugging the male connector on the Wireless On-Board Module cable into the socket labeled “W” on the GPS/Wireless Interface Module.
3. Disconnect the DriveRight 600E device or optional SmartCard On-Board Reader cable from the Digital Adapter Cable.
4. Connect the male connector from the GPS/Wireless Interface Module cable to the female connector on the Digital Adapter Cable.
5. Connect the female connector on the GPS/Wireless Interface Module to the male connector on the DriveRight 600E, or optional SmartCard On-Board Reader cable.

   See the diagrams below for properly disconnecting and connecting cables:

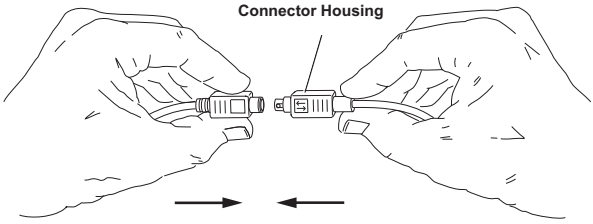
Disconnecting Cables:



Hold both cables by their connector housing and pull apart. The housing of the male connector slides to separate the cables.

Connecting Cables:

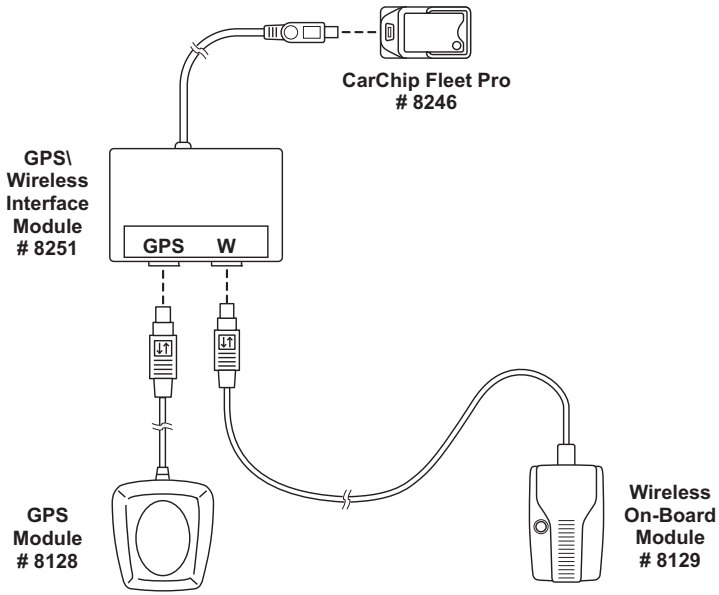
Slide Connector Housing



Hold the female connector and push the male connector from behind the housing, allowing the housing to slide back. The cables lock together when a connection is made.

CarChip GPS/Wireless Wiring Diagrams

Wiring the GPS Wireless System to a CarChip Fleet Pro



Making Connections

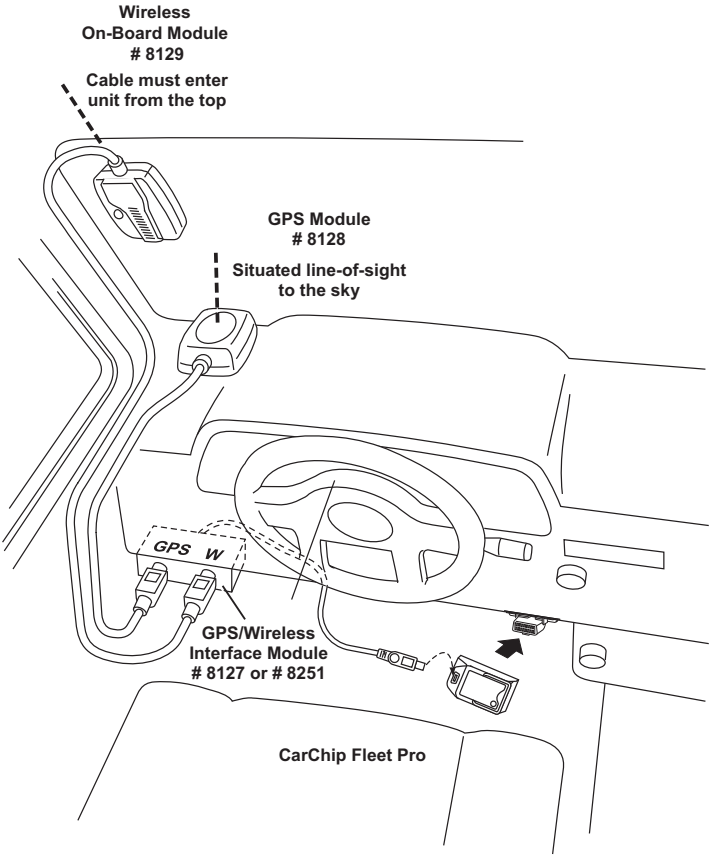
The GPS/Wireless Interface Module for CarChip Fleet Pro can be installed with either the GPS Module, the Wireless On-Board Module or both. The instructions below assume an installation involving all three modules.

Modify your own installation as necessary.

1. Connect the GPS Module to the GPS/Wireless Interface Module by plugging the male connector of the GPS Module cable into the socket labeled “GPS” on the GPS/Wireless Interface Module.
2. Connect the Wireless On-Board Module to the GPS/Wireless Interface Module by plugging the male connector on the Wireless On-Board Module cable into the socket labeled “W” on the GPS/Wireless Interface Module.
3. Connect the GPS/Wireless Interface module to CarChip Fleet Pro by plugging the male connector on the Module cable into the connector on the top of the CarChip Fleet Pro.

Installing the GPS/Wireless System

See the installation diagram below for correct placement and installation of all the components in the GPS/Wireless System into a vehicle:.



1. Place the GPS/Wireless Interface Module under the dashboard of the vehicle, near the DriveRight 600E device or SmartCard On-Board Reader or CarChip Fleet Pro.
2. Secure the GPS/Wireless Interface Module in place using the provided cable ties, two pieces of Velcro® tape, or two pieces of double-sided tape.
3. Mount the GPS Module on top of the dashboard.

Special requirements that should be taken into account when mounting the GPS Module are:

- Locate the module so that it has a clear view of the sky. Any metal obstructions may interfere with satellite reception. Davis recommends placing the GPS Module on the deep left corner of the dashboard. See the graphic on the previous page for more information.
- The module must be at least three feet away from any cellular or CB antenna. Close proximity to a transmitting antenna may degrade or disrupt GPS reception.

4. Secure module by using two pieces of Velcro tape or two pieces of double-sided tape.

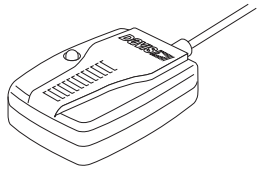
Note: Davis does not recommend mounting the GPS Module or Wireless On-Board Module outside of the vehicle.

5. Route the GPS Module cable to the GPS/Wireless Interface Module and plug the connector into the correct socket.
6. Mount the Wireless On-Board Module on a corner of a windshield.
   - Locate the module in an upper corner of the windshield so that it won't obstruct the driver's field of view. Dress the cable down the left side of the windshield glass.
   - Make sure the Wireless On-Board Module cable is mounted to the glass with the cable at the top. This correctly orients the module's antenna.
   - Mount the module so that its nearest edge is at least one inch from the left windshield pillar.
   - The module must be at least three feet away from any cellular or CB antenna. Close proximity to a transmitting antenna may degrade or disrupt wireless transmission.
7. Secure module by using two pieces of Velcro tape or two pieces of double-sided tape.
8. Route the Wireless On-Board Module to the GPS/Wireless Interface Module and plug the connector into the correct socket.

Wireless Download System Overview

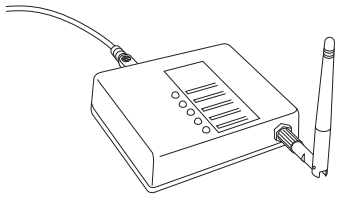
The DriveRight/CarChip Wireless Download System includes three products. These products work together to give your fleet the ability to download data directly from the DriveRight/CarChip devices to the FMS database in the fleet office, without any actions by your fleet drivers. With this system, there is no need for the drivers to carry the DriveRight/CarChip device or SmartCard into the fleet office. The data moves wirelessly from the vehicle to the FMS Database.

Wireless On-Board Module (# 8129)



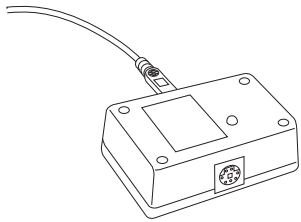
The Wireless On-Board Module installs in the vehicle and connects to the DriveRight/CarChip device through the GPS/Wireless Interface Module for DriveRight (# 8127) or for CarChip Fleet Pro (# 8251). Once the vehicle is parked in the fleet parking lot, this module communicates with a Base Station for Wireless Download System (# 8130) and moves the DriveRight/CarChip data to the FMS database.

Base Station for Wireless Download System (# 8130)



The Base Station for the Wireless Download System connects to a computer running FMS using a USB connection. It communicates with all the Wireless On-Board Modules (# 8129) installed in your fleet and moves the data from the DriveRight/CarChip devices to the FMS database. Using FMS, this operation can be performed daily for all the vehicles in your fleet, or only for selected vehicles. You can also initiate a manual download from selected vehicles or your whole fleet.

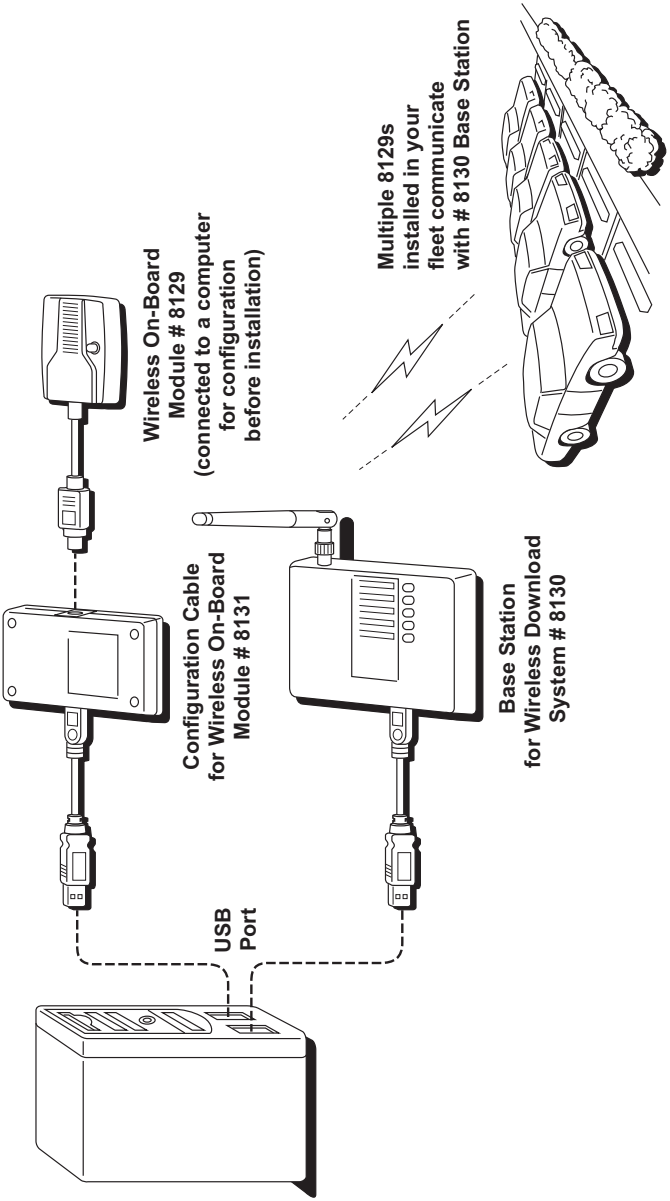
Configuration Cable for Wireless On-Board Module (# 8131)



This Configuration Cable for the Wireless On-Board Module connects to the PC running FMS using a USB connection. It connects a single Wireless On-Board Module (# 8129) to a computer so that it can be configured prior to installation in the vehicle for initial use in your fleet.

Wireless Download System Network Set Up

The following diagram is a sample Wireless Download System network.



Product Specifications

For the GPS/Wireless Interface Module for DriveRight (# 8127)

Size	3.63'' x 2.50'' x 1.00'' (93 mm x 64 mm x 26 mm)
Weight	5 oz (0.2 kg)
Operating Range	-40 °F to +176 °F (-40 °C to +85 °C)
Storage Range	-40 °F to +185 °F (-40 °C to +85 °C)
Input Power	11Vdc to 18Vdc (12Vdc nominal), 60-270 mA
Typical Standby Current	3mA
Typical Operating Current	60-270mA
Cable Connection	
Module to adapter cable	Male 8-pin Mini-DIN / 14'' (355 mm)
Module to DriveRight 600E	Female 8-pin Mini-DIN / 24'' (609 mm)
Cable Length	
Module to adapter cable	14'' (355 mm)
Module to DriveRight 600E	24'' (609 mm)

For the GPS/Wireless Interface Module for CarChip Fleet Pro (# 8251)

Size	3.63'' x 2.50'' x 1.00'' (93 mm x 64 mm x 26 mm)
Weight	5 oz (0.2 kg)
Operating Range	-40 °F to +176 °F (-40 °C to +85 °C)
Storage Range	-40 °F to +185 °F (-40 °C to +85 °C)
Input Power	5Vdc provided by CarChip Fleet Pro, 60-270 mA
Typical Standby Current	3mA
Typical Operating Current	60-100mA
Cable Connection	Female USB mini B
Cable Length	31'' (788 mm)

For the GPS Module (# 8128)

Size	2.38'' x 2.38'' x 1.00'' (58 mm x 48 mm x 27 mm)
Weight	4.0 oz (0.113 kg)
Operating Range	-40 °F to +176 °F (-40 °C to +85 °C)
Storage Range	-40 °F to +194 °F (-40 °C to +90 °C)
Input Power	+5Vdc
Memory Backup	Lithium cell, estimated 5-year service life
Typical Operating Current	60mA
Typical Standby Current	0mA (module is turned off when logout interval has elapsed.)

Cable
- Length . . . . . 78'' (2 m)
- Connector . . . . . 6-pin locking Mini-DIN

GPS Module Receiver Specifications
- Frequency . . . . . 1575.42 MHz (L1)
- Number of Channels 16
- Position Accuracy . . . . . <3 m
- Velocity Accuracy . . . . . 0.1 mph (0.05 m/s) typical
- Dynamic Limits
  - Acceleration . . . . . 2 G max
  - Jerk . . . . . 4 m/s^3

Startup Time To First Location Fix
- DriveRight unplugged for:
- 0 - 5 minutes . . . . . 15 seconds
- More than 5 minutes, less than 4 hours. 40 seconds
- More than 4 hours . . . . . 120 seconds

Update Interval . . . . . <1.0 second
Re-Acquisition Time, (after 60 seconds) . . . 10 seconds

For the Wireless On-Board Module (# 8129)

Size (l x w x h) . . . . . 2.50'' x 1.75'' x 0.83'' (64 mm x 45 mm x 21 mm)
Weight . . . . . 4.0 oz (0.113 kg)
Operating Range . . . . . -40 °F to +176 °F (-40 °C to +85 °C)
Storage Range . . . . . -40 °F to +194 °F (-40 °C to +90 °C)
Input Power 3.3V
Typical Standby Current 10mA
Typical Transmit Current 270mA

Cable
- Length . . . . . 96'' (2.4 m)
- Connector . . . . . 7-pin locking Mini-DIN

Wireless Transmitter Specifications
- Frequency . . . . . ISM 2.4GHz
- Protocol . . . . . IEEE 805.15.4
- Channels 12
- Line of Sight Range . . . . . 600' (200 m)
- Output Power . . . . . 60mW (18dBm) (US)
10mW (10dBm) (Europe)
- Receiver Sensitivity . . . . . -100dBM (1% packet error rate)

Notes

Contacting Davis Technical Support

If you have questions or encounter problems installing or operating your GPS\Wireless Interface Module, GPS Module, or Wireless On-Board Module, please contact Davis Technical Support.

Note: Please do not return items to the factory for repair without prior authorization.

Phone Support

(510) 732-7814 – Monday - Friday, 7:00 a.m. - 5:30 p.m. Pacific Time.

(510) 670-0589 – Fax to Technical Support.

E-mail Support

support@davisnet.com – E-mail to Technical Support.

info@davisnet.com – E-mail to Davis Instruments.

Web Support

www.davisnet.com – Copies of User Manuals and Installation Manuals are available on the “Support” page. Watch for FAQs and other updates.