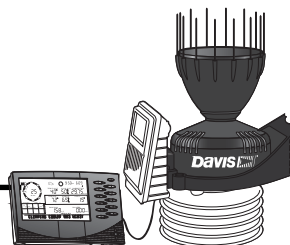


Cabled Vantage Pro2™ & Vantage Pro2 Plus™ Stations

6152C
6162C



Vantage Pro2™

The Vantage Pro2™ (# 6152C) and Vantage Pro2™ Plus (# 6162C) cabled weather stations include two components: the Integrated Sensor Suite (ISS) and the console. The ISS contains the sensor interface module (SIM), rain collector, an anemometer, and a passive radiation shield. The Vantage Pro2 console provides the user interface, data display, and calculations. The Vantage Pro2 Plus weather station includes two additional sensors that are optional on the Vantage Pro2 and purchased separately: the UV Sensor and the Solar Radiation Sensor. The console and ISS are powered by an AC-power adapter connected to the console. Batteries can be installed in the console to provide a backup power supply. Use WeatherLink® to let your weather station interface with a computer, log data, and upload weather information to the Internet. The 6152C and 6162C models rely on passive shielding to reduce solar-radiation induced temperature errors in the outside temperature sensor readings.

Integrated Sensor Suite (ISS)

| | |
|-------------------------------------|---|
| Operating Temperature | -40° to +150°F (-40° to +65°C) |
| Non-operating Temperature | -40° to +158°F (-40° to +70°C) |
| Current Draw | 5 mA (average) at 4 to 6 VDC for ISS only. 10 mA average for both console and ISS |
| Connectors, Sensor. | Modular RJ-11 |
| Cable Type | 4-conductor, 26 AWG |
| Cable Length, Anemometer. | 40' (12 m) (included); 240' (73 m) (maximum recommended) |

Note: Maximum displayable wind decreases as the length of cable increases. at 140' (42 m) of cable, the maximum wind speed displayed is 135 mph (60 m/s); at 240' (73 m), the maximum wind speed displayed is 100 mph (34 m/s).

| | |
|---|--|
| Wind Speed Sensor | Solid state magnetic sensor |
| Wind Direction Sensor | Wind vane with potentiometer |
| Rain Collector Type | Tipping bucket, 0.01" per tip (0.2 mm with metric rain adapter), 33.2 in ² (214 cm ²) collection area |
| Temperature Sensor Type | PN Junction Silicon Diode |
| Relative Humidity Sensor Type | Film capacitor element |
| Housing Material | UV-resistant ABS, polypropylene |
| Sensor Inputs | |
| RF Filtering | RC low-pass filter on each signal line |

ISS Dimensions(not including anemometer or bird spikes):

| | |
|---|---|
| Vantage Pro2 with Standard Rad Shield | 14.0" x 9.4" x 14.5" (356 mm x 239 mm x 368 mm) |
| Vantage Pro2 with Fan-Asprated Rad Shield. | 20.8" x 9.4" x 16.0" (528 mm x 239 mm x 406 mm) |
| Vantage Pro2 Plus with Standard Rad Shield | 14.3" x 9.7" x 14.5" (363 mm x 246 mm x 368 mm) |
| Vantage Pro2 Plus with Fan-Aspirated Rad Shield | 21.1" x 9.7" x 16.0" (536 mm x 246 mm x 406 mm) |

Console

| | |
|--|---|
| Console Operating Temperature | +32° to +140°F (0° to +60°C) |
| Non-Operating (Storage) Temperature | +14° to +158°F (-10° to +70°C) |
| Current Draw | 5 mA average for console only, 10 mA average for both console and ISS |
| AC Power Adapter | 5 VDC, 300 mA, regulated |
| Battery Backup | 3 C-cells |
| Battery Life (no AC power) | 1 month (approximately) |
| Connectors | Modular RJ-11 |
| Cable Type | 4-conductor, 26 AWG |
| Cable Length, Console | 100' (30 m) (included); 1000' (300 m) (maximum recommended) |
| Housing Material | UV-resistant ABS plastic |
| Console Display Type | LCD Transflective |
| Display Backlight | LEDs |
| Dimensions (console: length x width x height, display length x height) | |
| Console | 9.63" x 6.125" x 1.625" (245 mm x 156 mm x 41 mm) |
| Display | 5.94" x 3.375" (151 mm x 86 mm) |
| Weight (with batteries) | 1.88 lbs. (.85 kg) |

Data Displayed on Console

Data display categories are listed with General first, then in alphabetical order.

General

| | |
|--|--|
| Historical Graph Data | Includes the past 24 values listed unless otherwise noted; all can be cleared and all totals reset |
| Daily Data | Includes the earliest time of occurrence of highs and lows; period begins/ends at 12:00 am |
| Monthly Data | Period begins/ends at 12:00 am on the first of the month |
| Yearly Data | Period begins/ends at 12:00 am on the first of January unless otherwise noted |
| Current Display Data | Current display data describes the current reading for each weather variable. In most cases, the variable lists the most recently updated reading or calculation. Some current variable displays can be adjusted so there is an offset for the reading. |
| Current Graph Data | Current data appears in the right most column in the console graph and represents the latest value within the last period on the graph; totals can be set or reset. Display intervals vary. Examples include: Instant, 15-min., and Hourly Reading; Daily, Monthly, High and Low |
| Graph Time Interval | 1 min., 10 min., 15 min., 1 hour, 1 day, 1 month, 1 year (user-selectable, availability depends upon variable selected) |
| Graph Time Span | 24 Intervals + Current Interval (see Graph Intervals to determine time span) |
| Graph Variable Span (Vertical Scale) | Automatic (varies depending upon data range); Maximum and Minimum value in range appear in ticker |
| Alarm Indication | Alarms sound for only 2 minutes (time alarm is always 1 minute) if operating on battery power. Alarm message is displayed in ticker as long as threshold is met or exceeded. Alarms can be silenced (but not cleared) by pressing the DONE key. |
| Update Interval | Varies with sensor - see individual sensor specifications |

Barometric Pressure

| | |
|---|---|
| Resolution and Units | 0.01" Hg, 0.1 mm Hg, 0.1 hPa/mb (user-selectable) |
| Range | 16.00" to 32.50" Hg, 410 to 820 mm Hg, 540 to 1100 hPa/mb |
| Elevation Range | -999' to +15,000' (-600 m to 4570 m) (Note that console screen limits entry of lower elevation to -999' when using feet as elevation unit.) |
| Uncorrected Reading Accuracy | ±0.03" Hg (±0.8 mm Hg, ±1.0 hPa/mb) (at room temperature) |
| Sea-Level Reduction Equation Used | United States Method employed prior to use of current "R Factor" method |
| Equation Source | Smithsonian Meteorological Tables |
| Equation Accuracy | ±0.01" Hg (±0.3 mm Hg, ±0.3 hPa/mb) |
| Elevation Accuracy Required | ±10' (3m) to meet equation accuracy specification |
| Overall Accuracy | ±0.03" Hg (±0.8 mm Hg, ±1.0 hPa/mb) |
| Trend (change in 3 hours) | Change 0.06" (2 hPa/mb, 1.5 mm Hg) = Rapidly Change 0.02" (.7hPa/mb,.5 mm Hg)= Slowly |
| Trend Indication | 5 position arrow: Rising (rapidly or slowly), Steady, or Falling (rapidly or slowly) |
| Update Interval | 1 minute or when console BAR key is pressed twice |
| Current Display Data | Instant |
| Current Graph Data | Instant, 15-min., and Hourly Reading; Daily, Monthly, High and Low |
| Historical Graph Data | 15-min. and Hourly Reading; Daily, Monthly Highs and Lows |
| Alarms | High Threshold from Current Trend for Storm Clearing (Rising Trend) Low Threshold from Current Trend for Storm Warning (Falling Trend) |
| Range for Rising and Falling Trend Alarms | 0.01 to 0.25" Hg (0.1 to 6.4 mm Hg, 0.1 to 8.5 hPa/mb) |

Clock

| | |
|-----------------------|---|
| Resolution | 1 minute |
| Units | Time: 12 or 24 hour format (user-selectable) |
| Date | US or International format (user-selectable) |
| Accuracy | ±8 seconds/month |
| Adjustments | Time: Automatic Daylight Savings Time (for users in North America and Europe that observe it in AUTO mode, MANUAL setting available for all other areas) Date: Automatic Leap Year |
| Alarms | Once per day at set time when active |

Dewpoint (calculated)

| | |
|---------------------------------|---|
| Resolution and Units | 1°F or 1°C (user-selectable) °C is converted from °F rounded to nearest 1°C |
| Range | -105° to +130°F (-76° to +54°C) |
| Accuracy | ±2°F (±1°C) (typical) |
| Update Interval | 10 to 12 seconds |
| Source | World Meteorological Organization (WMO) |
| Equation Used | WMO Equation with respect to saturation of moist air over water |
| Variables Used | Instant Outside Temperature and Instant Outside Relative Humidity |
| Current Display Data | Instant Calculation |
| Current Graph Data | Instant Calculation; Daily, Monthly High and Low |
| Historical Graph Data | Hourly Calculations; Daily, Monthly Highs and Lows |
| Alarms | High and Low Threshold from Instant Calculation |

Vantage Pro2™**Evapotranspiration (calculated, requires solar radiation sensor)**

| | |
|------------------------|--|
| Resolution and Units | 0.01" or 0.1 mm (user-selectable) °C is converted from °F rounded to nearest 1°C |
| Range | Daily to 32.67" (832.2 mm); Monthly & Yearly to 199.99" (1999.9 mm) |
| Accuracy | Greater of 0.01" (0.25 mm) or ±5%, Reference: side-by-side comparison against a CIMIS ET weather station |
| Update Interval | 1 hour |
| Calculation and Source | Modified Penman Equation as implemented by CIMIS (California Irrigation Management Information System) including Net Radiation calculation |
| Current Display Data | Latest Hourly Total Calculation |
| Current Graph Data | Latest Hourly Total Calculation, Daily, Monthly, Yearly Total |
| Historical Graph Data | Hourly, Daily, Monthly, Yearly Totals |
| Alarm | High Threshold from Latest Daily Total Calculation |

Forecast

| | |
|---------------------|---|
| Variables Used | Barometric Reading & Trend, Wind Speed & Direction, Rainfall, Temperature, Humidity, Latitude & Longitude, Time of Year |
| Update Interval | 1 hour |
| Display Format | Icons on top center of display; detailed message in ticker at bottom |
| Variables Predicted | Sky Condition, Precipitation, Temperature Changes, Wind Direction and Speed |

Heat Index (calculated)

| | |
|-----------------------|--|
| Resolution and Units | 1°F or 1°C (user-selectable) °C is converted from °F rounded to nearest 1°C |
| Range | -40° to +165°F (-40° to +74°C) |
| Accuracy | ±2°F (±1°C) (typical) |
| Update Interval | 10 to 12 seconds |
| Source | United States National Weather Service (NWS)/NOAA |
| Formulation Used | Steadman (1979) modified by US NWS/NOAA and Davis Instruments to increase range of use |
| Variables Used | Instant Outside Temperature and Instant Outside Relative Humidity |
| Current Display Data | Instant Calculation |
| Current Graph Data | Instant Calculation; Daily, Monthly High |
| Historical Graph Data | Hourly Calculations; Daily, Monthly Highs |
| Alarm | High Threshold from Instant Calculation |

Humidity

Inside Relative Humidity (sensor located in console)

| | |
|-----------------------|--|
| Resolution and Units | 1% |
| Range | 1 to 100% RH |
| Accuracy | ±2% |
| Update Interval | 1 minute |
| Current Display Data | Instant (user-adjustable offset available) |
| Current Graph Data | Instant; Hourly Reading; Daily, Monthly High and Low |
| Historical Graph Data | Hourly Readings; Daily, Monthly Highs and Lows |
| Alarms | High and Low Threshold from Instant Reading |

Outside Relative Humidity (sensor located in ISS)

| | |
|-----------------------|---|
| Resolution and Units | 1% |
| Range | 1 to 100% RH |
| Accuracy | ±2% |
| Drift | <0.25% per year |
| Update Interval | 50 seconds to 1 minute |
| Current Display Data | Instant (user-adjustable offset available) |
| Current Graph Data | Instant and Hourly Reading; Daily, Monthly High and Low |
| Historical Graph Data | Hourly Readings; Daily, Monthly Highs and Lows |
| Alarms | High and Low Threshold from Instant Reading |

Moon Phase

| | |
|----------------------------------|--|
| Console Resolution | 1/8 (12.5%) of a lunar cycle, 1/4 (25%) of lighted face on console |
| WeatherLink Resolution | 0.09% of a lunar cycle, 0.18% of lighted face maximum (depends on screen resolution) |
| Range | New Moon, Waxing Crescent, First Quarter, Waxing Gibbous, Full Moon, Waning Gibbous, Last Quarter, Waning Crescent |
| Accuracy | ±38 minutes |

Rainfall

| | |
|---|--|
| Resolution and Units | 0.01" or 0.2 mm (user-selectable) (1 mm at totals ≥ 2000 mm) |
| Daily/Storm Rainfall Range | 0 to 99.99" (0 to 999.8 mm) |
| Monthly/Yearly/Total Rainfall Range | 0 to 199.99" (0 to 6553 mm) |
| Accuracy | For rain rates up to 4"/hr (100 mm/hr): ±4% of total or ± one tip of the bucket (0.01" /0.2 mm), whichever is greater. |
| Update Interval | 20 to 24 seconds |
| Storm Determination Method | 0.02" (0.5 mm) begins a storm event, 24 hours without further accumulation ends a storm event |
| Current Display Data | Totals for Past 15-min |
| Current Graph Data | Totals for Past 15-min, Past 24-hour, Daily, Monthly, Yearly (start date user-selectable) and Storm (with begin date); Umbrella is displayed when 15-minute total exceeds zero |
| Historical Graph Data | Totals for 15-min, Daily, Monthly, Yearly (start date user-selectable) and Storm (with begin and end dates) |
| Alarms | High Threshold from Latest Flash Flood (15-min. total, default is 0.50", 12.7 mm), 24-Hour Total, Storm Total, |
| Range for Rain Alarms | 0 to 99.99" (0 to 999.7 mm) |

Rain Rate

| | |
|---------------------------------|--|
| Resolution and Units | 0.01" or 0.1mm (user-selectable) at typical rates (see Fig. 1 and 2) |
| Range | 0, 0.04"/hr (1 mm/hr) to 82"/hr (0 to 2090 mm/hr) |
| Accuracy | ±5% for rates less than 5" per hour (127 mm/hr) |
| Update Interval | 20 to 24 seconds |
| Calculation Method | Measures time between successive tips of rain collector. Elapsed time greater than 15 minutes or only one tip of the rain collector constitutes a rain rate of zero. |
| Current Display Data | Instant |
| Current Graph Data | Instant and 1-min. Reading; Hourly, Daily, Monthly and Yearly High |
| Historical Graph Data | 1-min Reading; Hourly, Daily, Monthly and Yearly Highs |
| Alarm | High Threshold from Instant Reading |

Solar Radiation (requires solar radiation sensor)

| | |
|-----------------------------------|--|
| Resolution and Units | 1 W/m ² |
| Range | 0 to 1800 W/m ² |
| Accuracy | ±5% of full scale (Reference: Eppley PSP at 1000 W/m ²) |
| Drift | up to ±2% per year |
| Cosine Response | ±3% for angle of incidence from 0° to 75° |
| Temperature Coefficient | -0.067% per °F (-0.12% per °C); reference temperature = 77°F (25 °C) |
| Update Interval | 50 seconds to 1 minute (5 minutes when dark) |
| Current Graph Data | Instant Reading and Hourly Average; Daily, Monthly High |
| Historical Graph Data | Hourly Average, Daily, Monthly Highs |
| Alarm | High Threshold from Instant Reading |

Sunrise and Sunset

| | |
|----------------------|---------------------------------|
| Resolution | 1 minute |
| Accuracy | ±1 minute |
| Reference | United States Naval Observatory |

Vantage Pro2™**Temperature**

Inside Temperature (sensor located in console)

| | |
|-----------------------|---|
| Resolution and Units | Current Data: 0.1°F or 1°F or 0.1°C or 1°C (user-selectable) °C is converted from °F rounded to nearest 1°C Historical Data and Alarms: 1°F or 1°C (user-selectable) |
| Range | +32° to +140°F (0° to +60°C) |
| Sensor Accuracy | ±0.5°F (±0.3°C) (typical) |
| Update Interval | 1 minute |
| Current Display Data | Instant (user-adjustable offset available) |
| Current Graph Data | Instant Reading; Daily and Monthly High and Low |
| Historical Graph Data | Hourly Readings; Daily and Monthly Highs and Lows |
| Alarms | High and Low Thresholds from Instant Reading |

Outside Temperature (sensor located in ISS)

| | |
|--|---|
| Resolution and Units | Current Data: 0.1°F or 1°F or 0.1°C or 1°C (user-selectable) nominal °C is converted from °F rounded to nearest 1°C Historical Data and Alarms: 1°F or 1°C (user-selectable) |
| Range | -40° to +150°F (-40° to +65°C) |
| Sensor Accuracy | ±0.5°F (±0.3°C) (typical) |
| Radiation Induced Error (Passive Shield) | +4°F (2°C) at solar noon (insolation = 1040 W/m ² , avg. wind speed ≤ 2 mph (1 m/s)) (reference: RM Young Model 43408 Fan-Aspirated Radiation Shield) |
| Update Interval | 10 to 12 seconds |
| Current Display Data | Instant (user-adjustable offset available) |
| Current Graph Data | Instant; Daily, Monthly, Yearly High and Low |
| Historical Graph Data | Hourly Readings; Daily, Monthly, Yearly Highs and Lows |
| Alarms | High and Low Thresholds from Instant Reading |

Temperature Humidity Sun Wind Index (requires solar radiation sensor)

| | |
|------------------------------|---|
| Resolution and Units | 1°F or 1°C (user-selectable) °C is converted from °F rounded to nearest 1°C |
| Range | -90° to +165°F (-68° to +74°C) |
| Accuracy | ±4°F (±2°C) (typical) |
| Update Interval | 10 to 12 seconds |
| Sources and Formulation Used | United States National Weather Service (NWS)/NOAA Steadman (1979) modified by US NWS/NOAA and Davis Instruments to increase range of use and allow for cold weather use |
| Variables Used | Instant Outside Temperature, Instant Outside Relative Humidity, 10-minute Average Wind Speed, 10-minute Average Solar Radiation |
| Formulation Description | Uses Heat Index as base temperature, affects of wind and solar radiation are either added or subtracted from this base to give an overall effective temperature |
| Current Graph Data | Instant and Hourly Calculation; Daily, Monthly High |
| Historical Graph Data | Hourly Calculation; Daily, Monthly Highs |
| Alarm | High Threshold from Instant Reading |

Ultra Violet (UV) Radiation Dose (requires UV sensor)

| | |
|-----------------------|--|
| Resolution and Units | 0.1 MEDs to 19.9 MEDs; 1 MED above 19.9 MEDs |
| Range | 0 to 199 MEDs |
| Accuracy | ±5% of daily total |
| Drift | up to ±2% per year |
| Update Interval | 50 seconds to 1 minute (5 minutes when dark) |
| Current Graph Data | Latest Daily Total (user resettable at any time from Current Screen) |
| Historical Graph Data | Hourly, Daily Totals (user reset from Current Screen does not affect these values) |
| Alarm | High Threshold from Daily Total |
| Alarm Range | 0 to 19.9 MEDs |

Ultra Violet (UV) Radiation Index (requires UV sensor)

| | |
|-----------------------|---|
| Resolution and Units | 0.1 Index |
| Range | 0 to 16 Index |
| Accuracy | ±5% of full scale (Reference: Yankee UVB-1 at UV index 10 (Extremely High)) |
| Cosine Response | ±4% FS (0° to 90° zenith angle) |
| Update Interval | 50 seconds to 1 minute (5 minutes when dark) |
| Current Graph Data | Instant Reading and Hourly Average; Daily, Monthly High |
| Historical Graph Data | Hourly Average, Daily, Monthly Highs |
| Alarm | High Threshold from Instant Calculation |

Wind

Wind Chill (Calculated)

| | |
|-----------------------|--|
| Resolution and Units | 1°F or 1°C (user-selectable); °C is converted from °F and rounded to the nearest 1°C |
| Range | -110° to +135°F (-79° to +57°C) |
| Accuracy | ±2°F (±1°C) (typical) |
| Update Interval | 10 to 12 seconds |
| Source | United States National Weather Service (NWS)/NOAA |
| Equation Used | Osczevski (1995) (adopted by US NWS in 2001) |
| Variables Used | Instant Outside Temperature and 10-min. Avg. Wind Speed |
| Current Display Data | Instant Calculation |
| Current Graph Data | Instant Calculation; Hourly, Daily and Monthly Low |
| Historical Graph Data | Hourly, Daily and Monthly Lows |
| Alarm | Low Threshold from Instant Calculation |

Wind Direction

| | |
|-----------------------|--|
| Range | 1 - 360° |
| Display Resolution | 16 points (22.5°) on compass rose, 1° in numeric display |
| Accuracy | ±3° |
| Update Interval | 2.5 to 3 seconds |
| Current Graph Data | Instant Reading (user adjustable); 10-min. Dominant; Hourly, Daily, Monthly Dominant |
| Historical Graph Data | Past 6 10-min. Dominants on compass rose only; Hourly, Daily, Monthly Dominants |

Wind Speed

| | |
|-----------------------|---|
| Resolution and Units | 1 mph, 1 km/h, 0.4 m/s, or 1 knot (user-selectable) Measured in mph; other units are converted from mph and rounded to nearest 1 km/hr, 0.1 m/s, or 1 knot. |
| Range | 0 to 200 mph, 0 to 173 knots, 0 to 89 m/s, 0 to 322 km/h |
| Update Interval | Instant Reading: 2.5 to 3 seconds, 10-minute Average: 1 minute |
| Accuracy | ±2 mph (2 kts, 3.2 km/h, 0.9 m/s) or ±5%, whichever is greater |
| Maximum Cable Length | 540' (165 m) (Note that maximum wind speed reading decreases as length of cable from anemometer to ISS increases.) |
| Current Display Data | Instant |
| Current Graph Data | Instant Reading; 10-minute and Hourly Average; Hourly High; Daily, Monthly and Yearly High with Direction of High |
| Historical Graph Data | 10-min. and Hourly Averages; Hourly Highs; Daily, Monthly and Yearly Highs with Direction of Highs |
| Alarms | High Thresholds from Instant Reading and 10-minute Average |

Sensor Charts

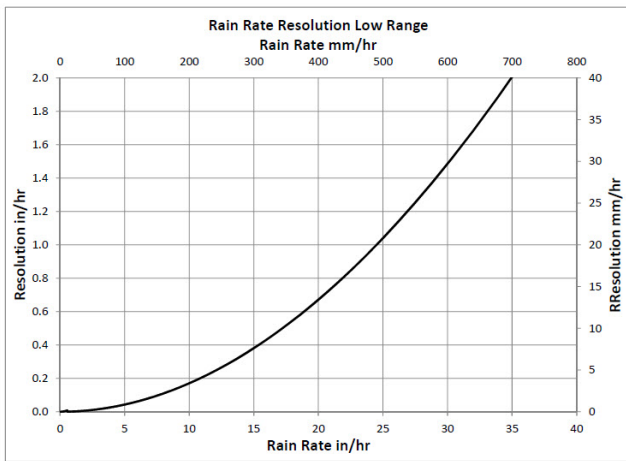


Figure 1. Low Range Rain Rate Resolution

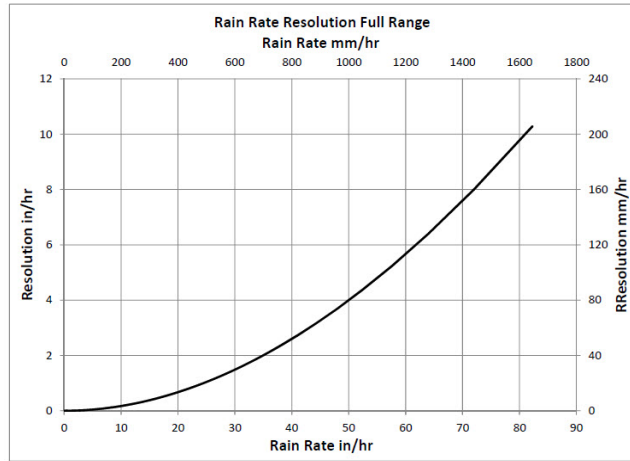


Figure 2. Full Range Rain Rate Resolution

Package Dimensions

| Product # | Package Dimensions (Length x Width x Height) | Package Weight | UPC Codes |
|-----------------------------|--|-------------------------|--|
| 6152C 6152CEU 6152CUK | 17.50" x 10.4" x 16.0" (445 mm x 264 mm x 406 mm) | 12 lbs. 15 oz. (5.9 kg) | 011698 00755 4 011698 00772 1 011698 00773 8 |
| 6162C 6162CEU 6162CUK | | 13 lbs. 4 oz. (6.0 kg) | 011698 00756 1 011698 00774 5 011698 00775 2 |
| 6322C 6322CM | 17.50" x 10.4" x 16.0" (445 mm x 264 mm x 406 mm) | 9 lbs.. 1 oz. (4.1 kg) | 011698 00777 6 011698 01048 6 |
| 6327C 6327CM | | 11 lbs. 2 oz. (5.0 kg) | 011698 00782 0 011698 01049 3 |