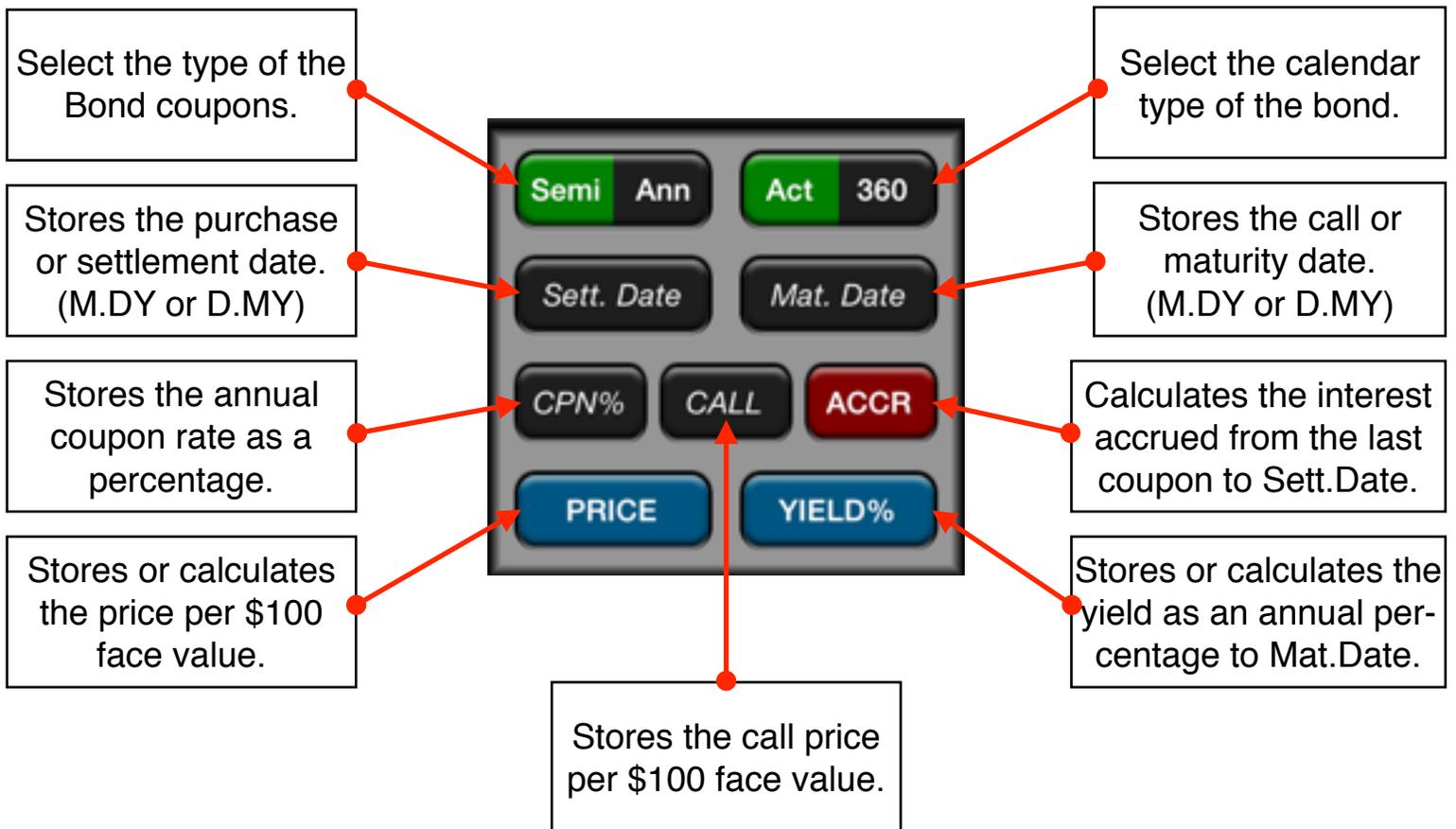


Bond Calculation “Pro” Tool

This tool is an expansion of the bond calculation capability included in the original HP-12C calculator. It allows you to calculate annual or semi-annual bonds with 30 day months and 360 day years or by using actual calendar days. To show it, touch the **OPT** and select the “Bonds Price & Yield” option.



The variables used in the tool are completely independent of the calculator's financial registers.

The **[PRICE]** or **[YIELD]** buttons calculate the value if the immediate previous key pressed was one of the keys in this tool. See the examples below to have a better understanding about this.

Example: Price & Yield of a Bond

What price should you pay on August 10, 2003 for a $6\frac{3}{4}\%$ U.S. Treasury bond that matures on May 1, 2018 if you wish a yield of $8\frac{3}{8}\%$? The calendar basis is actual and the coupon payments are made semi-annually.

Solution: (assuming M.DY date format, and RPN mode).

First, show the Bond tool touching the **OPT** and select the “Bonds Price & Yield” option. Then, follow this sequence:

Keystrokes	Description
[Act 360] [Semi Ann]	Sets the calendar to actual . Sets the bond payment period to semi-annual .
Type “8.102003” [Sett. Date]	Type the settlement date and press settlement . (if D.MY is set, type 10.082003).
Type “5.012018” [Mat. Date]	Type the maturity date and press maturity . (if D.MY is set, type 1.052018).
Type “6.75” [CPN%]	Type the annual coupon rate and touch CPN% .
Type “8.375” [YIELD%]	Type the desired yield and press Yield(%) .
[PRICE]	Calculates the bond price. Result = 86.38
[ACCR]	Calculates the interest accrued since last coupon to the settlement date. Result = 1.85 .
[+]	Adds the bond price and the accrued interest to calculate the net price. Result = 88.23

Suppose that the market quote for the bond is $88\frac{1}{4}$. What yield does it represent?

Keystrokes	Description
Type “88.25” [PRICE]	Type the market quote and press bond price to enter it.
[YIELD%]	Calculates the bond yield to maturity. Result = 8.13

Example: A Bond with a Call feature

What is the price of a 6% corporate bond maturing on March 3, 2022 and purchased on May 2, 2003 to yield 5.7%? It is callable on March 3, 2006 (a coupon date), at a value of 102.75. What is the yield to the call date? Use a 30/360 calendar with semi-annual coupon payments.

Solution: (The example assumes M.DY date format).

Keystrokes	Description
[Act 360] [Semi Ann]	Sets the bond calendar to 30/360 . Sets the bond type to semi-annual .
Type "5.022003" [Sett. Date]	Type the settlement date and press settlement to enter it (if D.MY is set, type 2.052003).
Type "3.032022" [Mat. Date]	Type the maturity date and press maturity to enter it (if D.MY is set, type 3.032022).
Type "6" [CPN%]	Type the annual coupon rate and touch CPN% to enter it.
Type "5.7" [YIELD%]	Type the desired yield and press Yield(%) to enter it.
[PRICE]	Calculates the bond price. Result = 103.43
Type "3.032006" [Mat. Date]	Change the maturity date to call date and press maturity to enter it (if D.MY is set, type 3.032022).
Type "102.75" [CALL]	Type the call value and press CALL% .
[YIELD%]	Calculates yield to call date. Result = 5.58

Example: A Zero-Coupon Bond

Calculate the price of a zero-coupon, semi-annual bond using a 30/360 calendar basis. The bond was purchased on May 19, 2003 and will mature on June 30, 2017, and has a yield to maturity of 10%.

Solution: (The example assumes M.DY date format).

Keystrokes	Description
[Act 360 [Semi Ann]	Sets the bond calendar to 30/360 . Sets the bond type to semi-annual .
Type "5.192003" [Sett. Date]	Type the settlement date and press settlement . (if D.MY is set, type 19.052003).
Type "6.302017" [Mat. Date]	Type the maturity date and press maturity . (if D.MY is set, type 30.062017).
Type "0" [CPN%]	Type zero coupon rate and touch CPN% .
Type "10" [YIELD%]	Type the desired yield and press Yield(%) .
[PRICE]	Calculates the bond price Result = 25.23