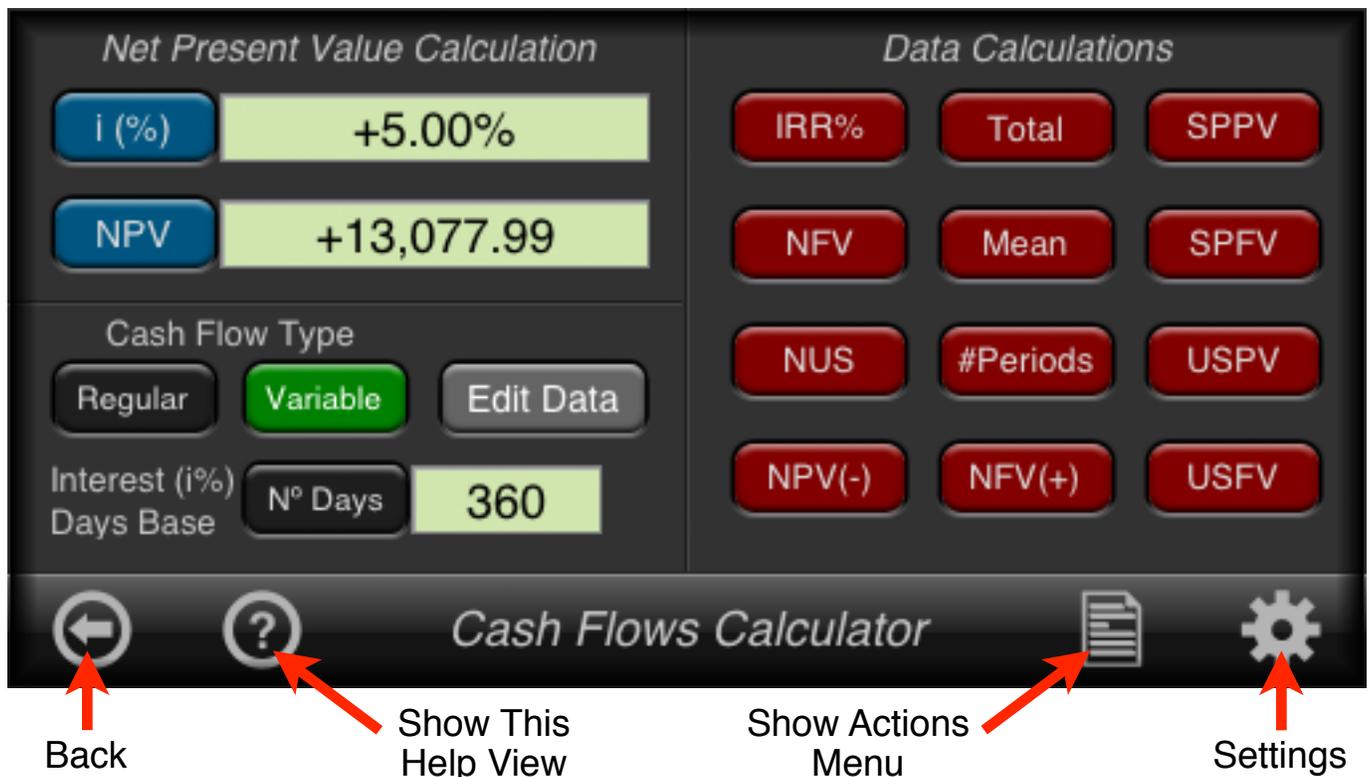


Cash Flows Calculator Tool

This tool manage and does calculations using a series of cash flows of unequal amounts that occur at a regular or variable intervals.



The “Cash Flows Calculator” tool has two independent cash flows lists to store the cash flow data:

The “**Regular**” Cash Flow Type list: stores cash flows separated regularly with the same period length (same way of g CF_0 , g CF_j and g N_j functions but in an independent list of unlimited size).

The “**Variable**” Cash Flow Type list: stores cash flows based on dates. The period length among them can be different. In this case, all the interest rates, calculated or entered, are expressed in the “Base Days” parameter entered in N° Days .

Once a list Type is selected (either “Regular” or “Variable”), All the different calculations are performed for this list.

To review or edit the selected list data, touch the **Edit Data** button to open the corresponding editor.

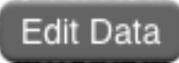
Cash Flows Calculator Buttons

i (%)	Stores or calculates the periodic interest rate as %.
NPV	Stores or calculates the Net Present Value of the current list.
IRR%	Calculates the Internal Rate of Return of the current list.
NFV	Calculates the Net Future Value of the current list.
NUS	Calculates the net uniform series—the amount of constant, equal cash flows having a present value equal to the NPV value.
#Periods	Calculates the number of compounding periods of the current list. In the Variable list is calculated in terms of the “N° Days” value.
Total	Calculates the sum of the cash flows in the current list.
Mean	Calculates the Arithmetic mean of the current list.
NPV(-)	Calculates the NPV of the Negative cash flows only. Used in the calculation of Modified Internal Rate of Return (see the example).
NFV(+)	Calculates the NFV of the Positive cash flows only. Used in the calculation of Modified Internal Rate of Return (see the example).
SPPV	Calculates the Single Payment Present Value: $\text{SPPV} (i\% , n) = (1 + i\% / 100)^{-n}$
SPFV	Calculates the Single Payment Future Value: $\text{SPPV} (i\% , n) = (1 + i\% / 100)^n$
USPV	Calculates the Uniform Series Present Value: $\text{SPPV} (i\% , n) = [1 - \text{SPPV} (i\% , n)] / (i\% / 100)$
USFV	Calculates the Uniform Series Future Value: $\text{SPPV} (i\% , n) = [\text{SPFV} (i\% , n) - 1] / (i\% / 100)$
Regular Variable	Selects the “Regular” or “Variable” list. If the “Variable” list is selected, the i% Days Base should be specified. (N° Days).
N° Days	If The cash Flow Type is set to “Variable”, inputs the displayed number as the interest rate base number of days (N° Days).
Edit Data	Shows the “Regular” or “Variable” interval Cash Flow data editor.

Toolbar Button Action	
	Close the view and get back to the Options Selection Menu. If the Data Editor is shown then gets back to the Cash Flow Calculator view.
	Shows the Help View with the this topic selected.
	Pop up the Action Menu for the Cash Flow Calculator View (see “Toolbar Actions Menu” below).
	Shows the “General Settings” view to customize the RLM-12 Finance Center application.

Actions Menu Items	
Load Data	Show the file dialog to load a previously saved data file.
Save Data	Show the file dialog to save the current data in a file.
Email Data	Build an email with the current list data information.
Clear Values	Clears to zero the NPV and i% variables.
Reset Data	Delete the current list and clears to zero the NPV and i% variables.
Cancel	Close the actions menu.

Regular Interval Cash Flows Editor

This view allows you to enter or edit cash flows equally spaced in time, at a “Regular interval”. To show this view, press the  button, and the  button.

#	Cash Flow Value (CFj)	Nj
0	-79,000.00	1
1	+14,000.00	1
2	+11,000.00	1
3	+10,000.00	3
4	+9,100.00	1
5	+9,000.00	2
6	+4,500.00	1
7	+100,000.00	1

Regular Period Cash Flow Record

CFj

Nj (\$ In) (\$ Out)

Import Cfj, Nj
Export CFj, Nj

Add
Update
Insert
Delete

The buttons description and functionality is summarized in the following table:

Regular Interval Cash Flows Editor Buttons	
	Inputs the displayed number as cash flow amount.
	Inputs the displayed number as the number of times the cash flow value occurs consecutively. By default is equal to 1, and must be a positive integer up to 99.
 	Set the sign of the cash flow value. Positive for “Cash-In” amounts and Negative for “Cash-Out” amounts.
	Copies the CFj and Nj values from the current calculator’s Storage Registers to the Regular list. The number of cash flows to copy is the Financial Register “n” current value.
	Copies the current content of the list to the calculator’s Storage Registers. If the list is empty does nothing. If the list has more than 100 items, copies the first 100 only.
	Adds the current value and repetitions to the end of the list.
	If an item is selected in the list, updates the selected cash flow with the supplied data.
	Inserts the supplied cash flow data above the current row.
	Deletes the current selected item in the Regular Interval list.

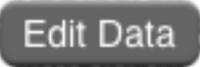
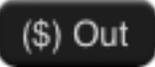
Example: An Investment with Grouped Cash Flows.

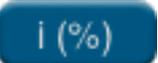
You are considering an investment that requires a cash outlay of \$9,000, with the promise of monthly cash flows as shown. Calculate IRR%. Also find NPV, NUS and NFV at an annual interest rate of 9%.

Period	Amount	Period	Amount
0	(\$9,000)	6	\$1,000
1	\$500	7	\$1,000
2	\$500	8	\$0
3	\$500	9	\$1,500
4	\$1,000	10	\$1,500
5	\$1,000	11	\$1,500

Solution:

First, expand the RLM-12 Finance Center to show the “Options Selection Menu” and select the “Cash Flow Editor” option. Then follow the next sequence:

Keystrokes	Description
	Select the “regular” interval list.
	Shows the “regular” interval list editor
Touch 	Display the Actions Menu.
Touch “Reset Data”	Confirm to clear all the data in the list.
Type “9000” 	Type the fist cash flow amount and touch “CFj” to enter it.
Touch 	Set the cash flow type to “Cash Out” (negative).
Touch 	Add the cash flow to the list.

Keystrokes	Description
Type "500"  Type "3" 	Type the next cash flow amount and touch "CFj" to enter the amount. This cash flow repeats consequently 3 times, so type 3 and touch "Nj" to enter the number of times.
Touch 	Add the cash flow to the list.
Type "1000"  Type "4" 	Type the next cash flow amount and touch "CFj" to enter the amount. This cash flow repeats consequently 4 times, so type 4 and touch "Nj" to enter the number of times.
Touch 	Add the cash flow to the list.
Type "0" 	Type the next cash flow amount and touch "CFj" to enter the amount.
Touch 	Add the cash flow to the list.
Type "1500"  Type "3" 	Type the next cash flow amount and touch "CFj" to enter the amount. This cash flow repeats consequently 3 times, so type 3 and touch "Nj" to enter the number of times.
Touch 	Add the cash flow to the list.
Touch 	Touch the back Arrow to close the editor.
Type "0.75" & Touch 	Type 9÷12 as interest rate and touch "i%" to enter it (9% is an annual rate and the cash flows are by month).
Touch 	Calculate the Net Present Value. Result = 492.95
Touch 	Calculate the Internal Rate of Return. Result = 1.53%
Touch 	Calculate the Net Future Value. Result = 535.18
Touch 	Calculate the Net Uniform Series. Result = 46.86

Example: Modified Internal Rate of Return.

An investor has an investment opportunity with the following cash flows:

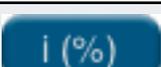
Period	Amount	Repetitions
0	(\$180,000)	1
1	\$100,000	5
2	(\$100,000)	5
3	\$0	9
4	\$200,000	1

Calculate the MIRR using a safe rate of 8% per period and a reinvestment (risk) rate of 13% per period.

Solution:

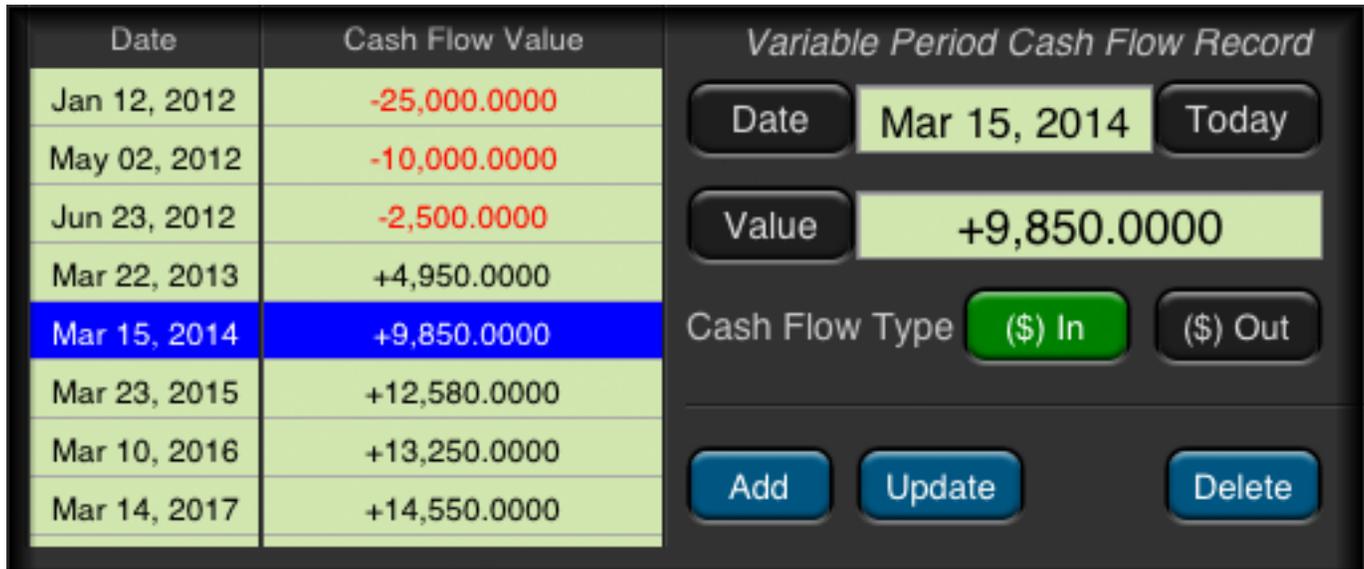
First, expand the RLM-12 Finance Center to show the “Options Selection Menu” and select the “Cash Flow Editor” option. Then follow the next sequence:

Keystrokes	Description
	Select the “regular” interval list.
	Shows the “regular” interval list editor
Touch 	Display the Actions Menu.
Touch “Reset Data”	Confirm to clear all the data in the list.
Type “180000” &  	Type the first cash flow amount and touch “CFj” to enter it. Set the cash flow type to “Cash Out” (negative).
Touch 	Add the cash flow to the list.
Type “100000”  Type “5” 	Type the next cash flow amount and touch “CFj”. This cash flow repeats consequently 5 times, type 5 and touch “Nj”.

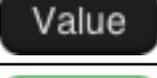
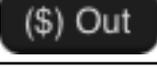
Keystrokes	Description
Touch 	Add the cash flow to the list.
Touch 	Set the cash flow type to "Cash Out" (negative).
Touch 	Add the cash flow to the list.
Type "0"  Type "9" 	Type the next cash flow amount and touch "CFj". Type "9" and touch "Nj" (it repeats 9 times).
Touch 	Add the cash flow to the list.
Type "200000" 	Type the next cash flow amount and touch "CFj".
Touch 	Add the cash flow to the list.
Touch 	Touch the back Arrow to close the editor.
  	Clears the calculator financial registers
Touch  	Get the number of periods in the list and store it in the calculator Financial Register "n". Result = 20
Type "8" 	Type the safe rate (8%) and enter it.
Touch 	Calculate the Net Present Value of the negative cash flows only. Result = -451,737.14
Touch 	Stores the result in the Financial register "PV".
Type "13" 	Type the safe rate (8%) and enter it.
Touch 	Calculate the Net Future Value of the positive cash flows only. Result = 4,252,936.45
Touch 	Stores the result in the Financial register "FV".
Touch 	Calculates the MIRR. Result = 11.86%

Variable Interval Cash Flows Editor

This view allows you to enter or edit cash flows spaced freely in time, at “Variable intervals”. To show this view, press the “**Variable**” Cash Flow type button, and press the “**Edit Data**” button.



The buttons description and functionality is summarized in the following table:

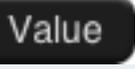
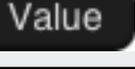
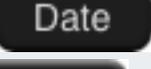
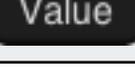
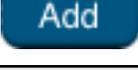
Variable Interval Cash Flows Editor Buttons	
	Inputs the displayed number as a date in the current calculator date setting (M.DY or D.MY) format.
	Inputs the current iPad's date.
	Inputs the displayed number as the cash flow amount.
 	Set the sign of the cash flow value. Positive for Cash-In” amounts and Negative for “Cash-Out” amounts.
	Adds the current date and cash flow values to the end of the Variable Interval list.
	If an item is selected in the list, updates the selected cash flow with the supplied data.
	Deletes the current selected item in the Variable Interval list.

Example: Stock Investment with Dividends.

An investor purchased \$25,000 in a stock in Jan-12, 2008, \$10,000 in May-2, 2008 and \$2,500 in Jun-23, 2008. He has received as dividends, \$1,800 in Mar-23, 2009; \$2,000 in Mar-10, 2010 and \$2,100 in Mar-14, 2011. Finally he sell all the stock for \$55,000 in Feb-8, 2012. What was the annual yield of the business for 365 days year and for a 360 days year?

Solution: (Keystrokes assumes M.DY mode)

Keystrokes	Description
	Select the "Variable" interval list.
	Show the "Variable" interval list editor
Touch 	Display the Actions Menu.
Touch "Reset Data"	Clear all the data in the list.
Type "1.122008"  Type "25000" 	Type the initial date and press "Date". Type the first amount (\$25,000) and press "Value".
Touch 	Set the cash flow type to "Cash Out" (negative).
Touch 	Add the cash flow to the list.
Type "5.022008"  Type "10000" 	Type the next date and press "Date". Type the amount (\$10,000) and press "Value".
Touch 	Set the cash flow type to "Cash Out" (negative).
Touch 	Add the cash flow to the list.
Type "6.232008"  Type "10000" 	Type the next date and press "Date". Type the amount (\$2,500) and press "Value".
Touch 	Set the cash flow type to "Cash Out" (negative).
Touch 	Add the cash flow to the list.

Keystrokes	Description
Type "3.232009"  Type "1800" 	Type the next date and press "Date". Type the amount (\$1,800) and press "Value".
Touch 	Add the cash flow to the list.
Type "3.102010"  Type "2000" 	Type the next date and press "Date". Type the amount (\$2,000) and press "Value".
Touch 	Add the cash flow to the list.
Type "3.142011"  Type "2100" 	Type the next date and press "Date". Type the amount (\$2,100) and press "Value".
Touch 	Add the cash flow to the list.
Type "2.082012"  Type "55000" 	Type the next date and press "Date". Type the amount (\$55,000) and press "Value".
Touch 	Add the cash flow to the list.
Touch 	Touch the back Arrow to close the editor.
Type "365" 	Type the 365 and touch "N°Days" to enter it.
Touch 	Calculates the IRR%. Result = 13.76%
Type "360" & Touch 	Type the 360 and touch "N°Days" to enter it.
Touch 	Calculates the IRR%. Result = 13.55%

The annual yield of the business for 365 days year was **13.76%**.
The annual yield of the business for 360 days year was **13.55%**.