

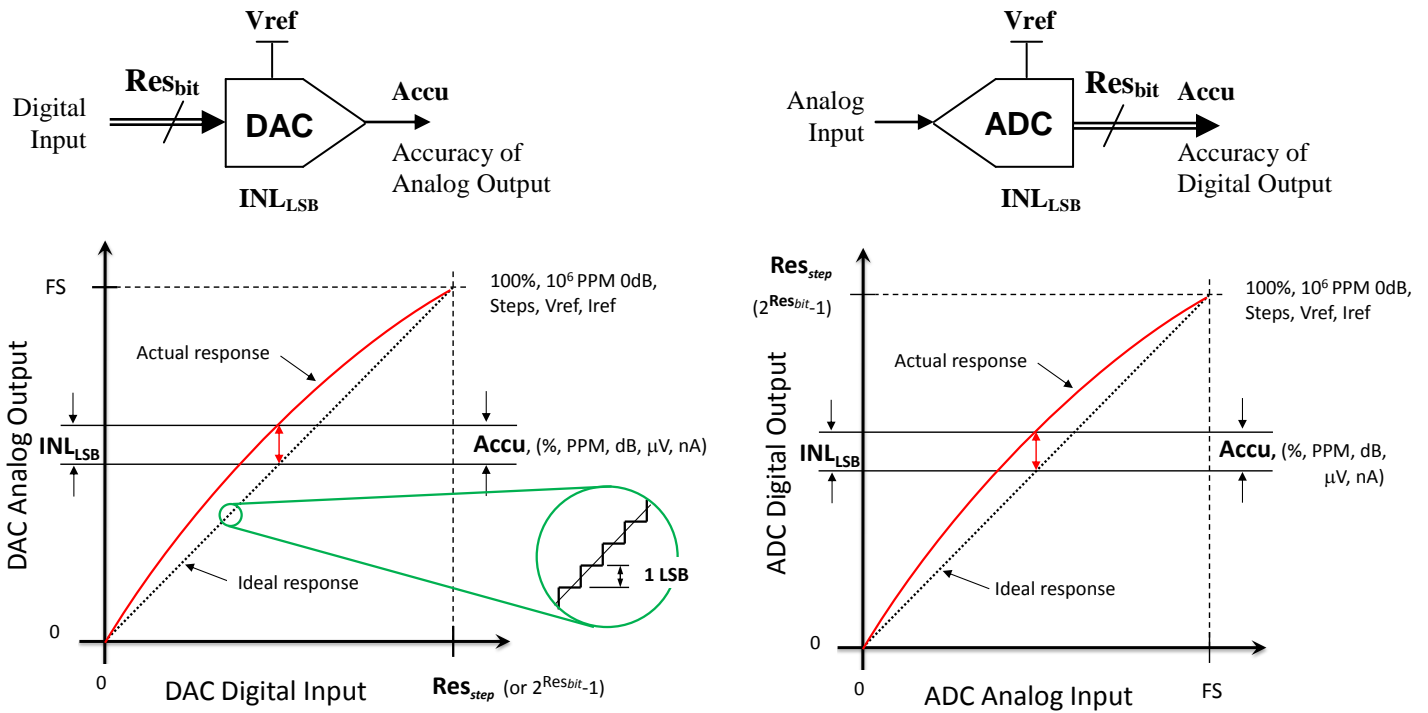
ACCU Quick Reference Guide

Accuracy Calculator (ACCU) is a program written for the HP50g calculator that aids in the design and analysis of data converter application circuits. ACCU calculates the DC accuracy of an ideal data convertor. The DC accuracy of a data converter is the measure of the maximum deviation from the ideal linear transfer function. Each parameter can be entered or found.

Parameters

1. Resolution, **Res**, in bits or steps
2. Integral Nonlinearity, **INL**, in LSB
3. Accuracy, **Accu**, in %, PPM, dB, μV , or nA

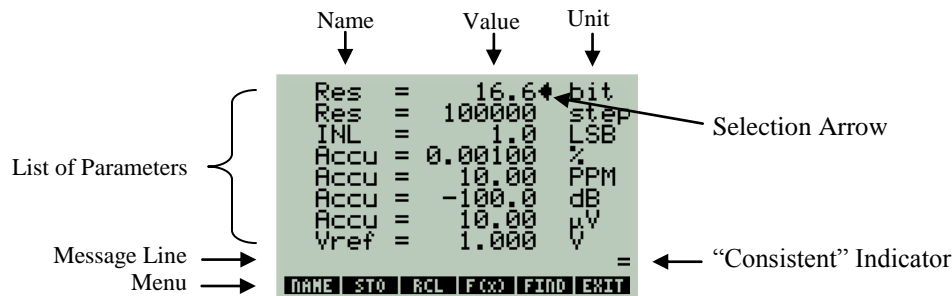
Data Convertor Accuracy



Equations

$$\frac{INL_{LSB}}{2^{Res_{bit}} - 1} = \frac{INL_{LSB}}{Res_{step}} = \frac{Accu_{\%}}{100} = \frac{Accu_{PPM}}{10^6} = \frac{Accu_{\mu V}}{V_{ref}} = \frac{Accu_{nA}}{I_{ref}} = 10^{\left(\frac{Accu_{dB}}{20}\right)}$$

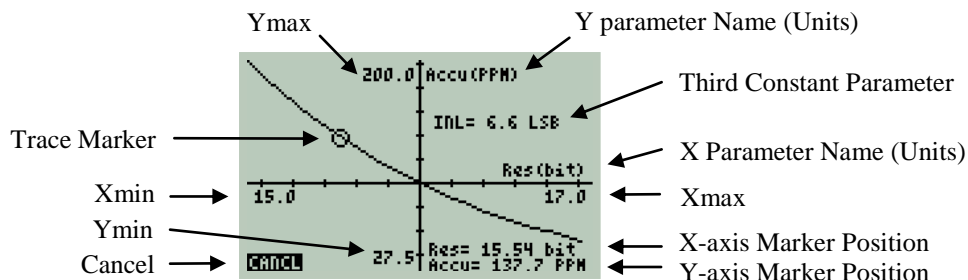
Parameter Display and Commands



- ▼ or ▲ selects a parameter, as indicated by the selection arrow.
- ▶ display an alternative parameter (indicated by a small dot right of the selection arrow)
- ◀ (insert) insert a parameter value. Press **ENTER** when finished.
- ◀ (delete) delete a parameter value. Press **ENTER** when finished.
- F1** () display a description of the selected parameter in the message line
- F1** () display the full precision of the selected parameter in the message line
- F2** () store all parameters
- F3** () recall all stored parameters
- F4** () plot any parameter with respect to any other parameter. First selects the x parameter, then y.
- F5** () find the selected parameter
- F6** () or **ON** (Cancel) exit the program
- F6** () launch previous run calculator (for physical calculators only - requires CALC)
- ON** turn off the calculator
- NXT** **F1** () display the equations used by ACCU
- NXT** **F2** () export the selected parameter to the stack upon exiting
- NXT** **F3** () import a number present in level 1 of the stack when ACCU was launched, to the selected parameter. The import value is automatically displayed on the message line.
- NXT** **F4** () enter all default parameter values. Parameters are not stored until is executed.

The equal sign (=) indicates all the parameters are consistent with each other and will appear following a **F5** () command. The not equal sign (≠) appears following an entry, indicating that the parameters may not be consistent.

Plot Display and Commands



- ▲ Zoom out
- ▼ Zoom in
- ▶ Move trace marker left by 1 pixel
- ▶ Move trace marker left by ½ division
- ▶ Move trace marker left by 2 divisions
- ▶ Move trace marker right by 1 pixel
- ▶ Move trace marker right by ½ division
- ▶ Move trace marker right by 2 divisions
- F1** () Return to the parameter display