

Input block test plan

Propulsion system simulation

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# Aim & Hypothesis

## Aim

The aim is to verify that the data can be transmitted from the user to the calculation.

## Hypothesis

The user input is transmitted to the calculation.

# Variables

These are the constants and variables that will be used during the test.

|  |  |
| --- | --- |
| Constants simulation | Keep constant at... |
| Battery level computer | Constant power source. |
| All input variables | Real positive numbers & ISO-notation. |

## Inputs

The limits stated are the limits of the real world. If values out of this range are entered, the outputs will be unreliable.

|  |  |
| --- | --- |
| Inputs | Value |
| Value 1 (input variables) | 1-10 |
| … | - |
| Value 2 (constant coefficient) | 1-10 |
| … | - |

## Outputs

These are the outputs that will be monitored and will be used to see variations or changes in the system.

|  |  |
| --- | --- |
| Outputs | Value |
| Output value 1 | 1-100 |
| … | - |

# Tools

|  |  |
| --- | --- |
| Testing tools | Demand |
| Computer | Windows 10 compatible |
| Excel | Newest version |
| Keyboard | No limit |
| Mouse | No limit |
| Calculator | Basic calculator |
| Pen & Paper | Basic pen & paper |

# Method

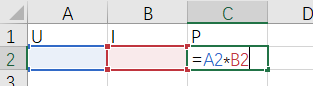
This section consists of actions that need to be performed during the test to conclude a result. The conditions of the constants stated in chapter “2. Variables” have to be met before executing the simulation. To execute the simulation, follow the steps stated in “4.1. Steps”.

This part is a general test method which should be test several times to make sure when input block is connected to all different formulas which will be used in calculation component, the data can be transmitted from input block successfully.

In this general test method part, the formula P =U\*I is used to give an example. We set **U (value 1)** as an input variable and **I (value 2)** is a constant which can be seen as a coefficient. **P** is the **output value 1**. According to different formulas, there can be several input variables, coefficients, and outputs.

## 4.1 Steps

1. Create a new form in Excel.
2. Take the grid A2 as the input block of **U**. Take the grid B2 as the input block of **I**.
3. Take the grid AC2 as the indicator of calculation result. And add a formula to C2: = B2 \* A2.



1. Choose a numeric value of **I** and input this value to B2
2. Choose several numeric values of **U** and input values to A1 and record results from C2.
3. Calculate several results according to different values of **U** on paper.
4. Compare the results from paper calculation and C2.
5. Input a non-numeric value to A2 and record the result from C2

# Expect result

When numeric values of A2 is input, the values of C2 should be equal to results from paper calculation.

When a non-numeric value of A2 is input, text ‘#VALUE’ (specify text of Excel which means the calculation result is not a numeric value) should be shown in C2

# Conclusion

When numeric values of A2 is input, if the values of C2 are not equal to results from paper calculation or text ‘#VALUE’ appears in C2, the test is failed

When a non-numeric value of A2 is input, a numeric value appears in C2, the test is failed.

If other all conditions which meet the expect results appear, the tests are successful.