# Logic Gates: Truth Tables

The table below summarizes two common presentation forms of the results of the fundamental logic gates (*boolean operators*). The numeric digital name pair: **0-1** is employed below but could be equivalently expressed using the logic pair: **F-T**, the voltage pair: **Gnd-Vcc**, the abstract pair: **Lo-Hi**, simply **Off-On** or even the colour: **Red**-**Green** as in the case of our ACES’ **Truth Be Told** device.

|  |  |  |  |
| --- | --- | --- | --- |
| Gate | Style: **Counting Order** | Style: **Matrix Format** | **Truth Be Told** |
| **AND** |

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **Y** |
| 0 | 0 | **0** |
| 0 | 1 | **0** |
| 1 | 0 | **0** |
| 1 | 1 | **1** |

 |

|  |  |
| --- | --- |
|  | **B** |
| 0 | 1 |
| **A** | 0 | **0** | **0** |
| 1 | **0** | **1** |

 |  |
| **OR** |

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **Y** |
| 0 | 0 |  |
| 0 | 1 |  |
| 1 | 0 |  |
| 1 | 1 |  |

 |

|  |  |
| --- | --- |
|  | **B** |
| 0 | 1 |
| **A** | 0 |  |  |
| 1 |  |  |

 |  |
| **NAND** |

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **Y** |
| 0 | 0 |  |
| 0 | 1 |  |
| 1 | 0 |  |
| 1 | 1 |  |

 |

|  |  |
| --- | --- |
|  | **B** |
| 0 | 1 |
| **A** | 0 |  |  |
| 1 |  |  |

 |  |
| **NOR** |

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **Y** |
| 0 | 0 |  |
| 0 | 1 |  |
| 1 | 0 |  |
| 1 | 1 |  |

 |

|  |  |
| --- | --- |
|  | **B** |
| 0 | 1 |
| **A** | 0 |  |  |
| 1 |  |  |

 |  |