

The Art of Musketry: Infantry Tactics in WDS Napoleonic Warfare



This article continues the Napoleonic series and now turns to a deeper examination of musketry, covering both fundamental mechanics and more advanced principles. Understanding these factors is essential for developing tactics based on the specific strengths and weaknesses of the infantry under your command.

This article dives into the behind-the-scenes mechanics of the game engine, showcasing the level of realism built into it.

It then covers unique features and their tactical implications for players leading the British army. This section examines battalion sizes, frontage limitations, and the reasons behind the British preference for relying on musket-based combat over melee.

The final section covers practical tips for optimizing infantry deployment specifically for musket use.

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1. Understanding the basics of FP values

Musket firepower (FP) values are driven by three main factors:

1.1 Base Musket FP (PDT Values)

Base FP values are defined in the PDT and WEC files. Most armies' troops are armed with muskets, which have a maximum range of 3 hexes. FP values typically start at 4 FP at 1 hex for conscripts or militia, while standard trained infantry usually have 6 FP.

These FP values should drive your tactical choices. For example, French conscript battalions from 1813 with FP 3 have little chance of winning a firefight against veteran Allied formations, although Russian infantry is often below average in musket FP as well.

Tactical tip

It is a good practice to check the FP values of your divisions at the start of a scenario to ensure you deploy them according to their musket capabilities.

1.2 Firepower Modifiers

Several modifiers affect FP. These include:

- External drivers: Range, terrain and weather
- Your own unit formation and condition: disorder status, Fatigue, quality, formation etc
- The type and formation of the enemy unit you are firing at

Full details can be found in the manual and PDT files.

Tactical tip

It is recommended to keep the manual at hand while playing in order to understand the various firepower modifiers. With experience, these mechanics will become intuitive and you will no longer need to refer to the manual.

1.3 The Firing Unit Battalion Size

Battalion size significantly influences effective firepower and requires a more detailed explanation, covered in the next section.

2. Battalion Size Impact on FP

A company constitutes the lowest tactical unit in the game series. Players have direct control over skirmish companies, operating as separate counters, but do not get to see and control the companies within their formed battalions. The breakdown by company is handled in the background and the aspect of company size plays a significant role in a battalion's effective FP

All infantry battalions are composed of either 6 or 10 companies, depending on the title and the Column Fire Modifier defined in the PDT:

Column Fire Modifier

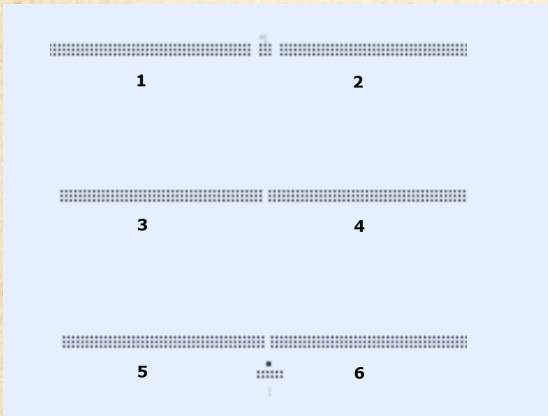
Austrian: 1/3

French: 1/3

The Column Fire Modifier determines how many companies are positioned in the front when a battalion forms column. For example, a value of **1/3** means that one-third of the battalion's companies form the front of the column.

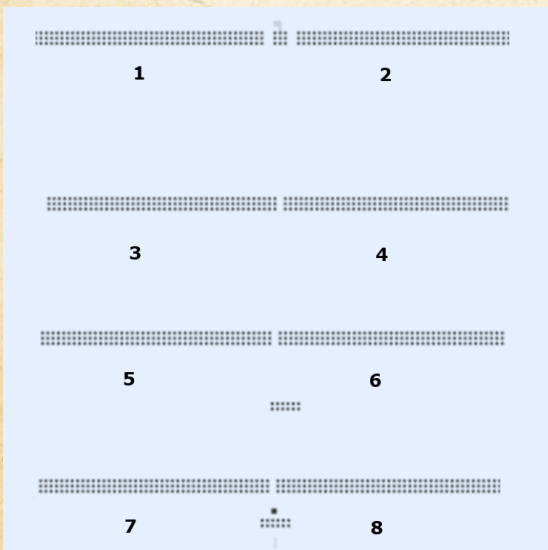
If the modifier is 1/3, the engine assumes the battalion is composed of 6 companies (since 2 companies represent one-third of 6). Therefore, when formed in column, 2 companies are placed in the front, while the remaining 4 are positioned behind. The image below illustrates an infantry battalion composed of 6 companies, with 1/3 (two companies) forming the front of the column.

Image 2



In the case of a 1/4 Column Fire Modifier, the battalion is assumed to be composed of 8 companies, with 2 companies (one quarter of 8) forming the front of the column and the remaining 6 positioned behind:

Image 3



Similarly, with a 1/5 Column Fire Modifier, the battalion is assumed to consist of 10 companies, again with 2 companies (one fifth of 10) forming the front and the remaining 8 positioned in the rear.

In all cases, the engine always maintains two companies in the front of the column. The modifier simply determines the total number of companies in the battalion and therefore how many are positioned behind the leading two companies.

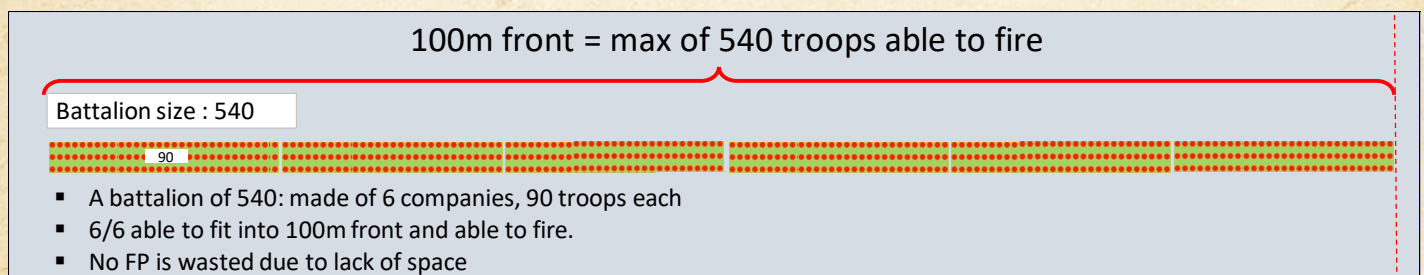
Now let us examine why these matters and how it affects firepower (FP). For clarity, the following examples use a 1/3 Column Fire Modifier, meaning battalions are assumed to consist of 6 companies.

Battalion size directly determines company size. For example:

- An 1100-man battalion composed of 6 companies results in companies of approximately 183 men each ($1100 \div 6$).
- A 540-man battalion composed of 6 companies results in companies of 90 men each ($540 \div 6$).

Frontage must also be considered. A single hex represents a 100-meter front and allows a maximum of 540 troops in 3-rank line formation to effectively deploy and fire their muskets. The image below shows a 540-man, 3-rank infantry battalion formed in line, composed of 6 companies of 90 men each, fully utilizing the available frontage:

Image 4



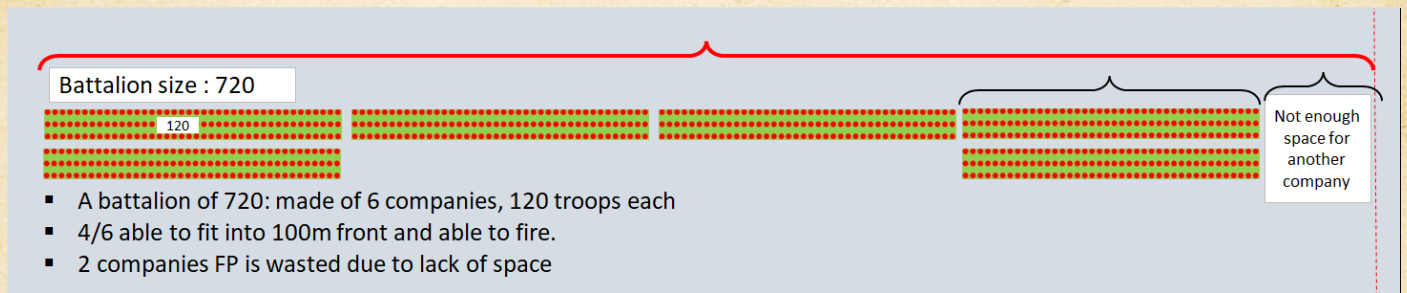
In this case, a 540-man battalion fully utilizes the 100-meter hex. All troops can deploy in 3 ranks along the frontage and fire effectively, resulting in a total firepower of 3240 (540×6 FP). No space or FP is wasted as the troops number is optimal for the frontage.

For any 3-rank battalion larger than 540 men, it is no longer possible to fit all troops within the three ranks along a single 100-meter front. As a result, some troops must be positioned behind the front ranks. This process is handled automatically behind the scenes by the game engine - players do not manage this manually.

Importantly, the engine does not reposition individual soldiers into the fourth rank but handles this at a company level since the company is the smallest tactical unit represented in the engine. So, in case of lack of space, an entire company (or several companies) is deployed behind the front ranks and becomes masked within the battalion frontage.

The image below illustrates how this works in the case of a 720-man battalion deployed over 100m front:

Image 5

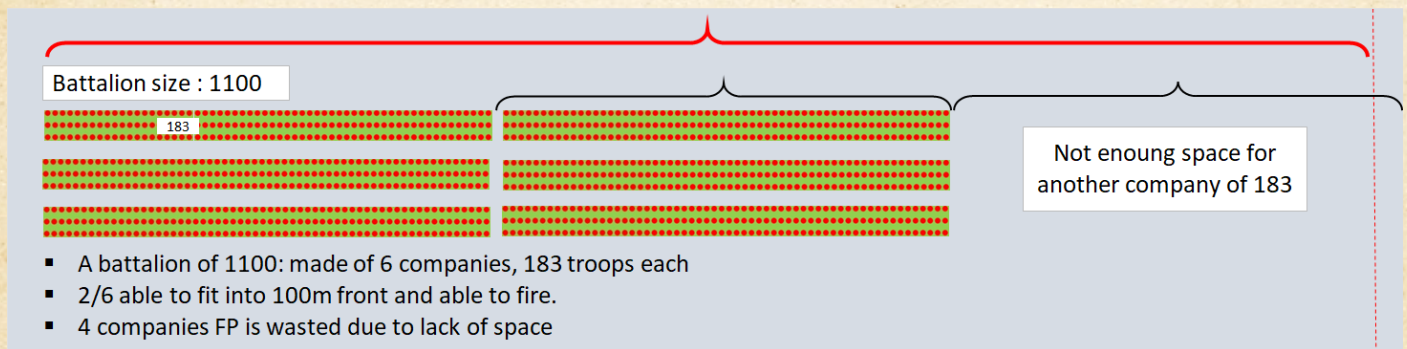


Each company consists of 120 troops. Only four companies can fit within a 100-meter front. As shown in the image, the 5th and 6th companies cannot be accommodated within the available frontage and must be positioned to the rear. This means they are masked by the front ranks and unable to use their muskets.

As a result, their firepower is effectively wasted, and only the 480 men from the four forward companies (4×120) are able to fire, producing a total firepower of 2880 (480×6 FP).

Now consider the most extreme example: an 1100-man battalion:

Image 6



In this case, each of the six companies consists of 183 men. Due to frontage limits, only two companies can be positioned in the front. The remaining four must be placed behind them, resulting in a formation nine ranks deep.

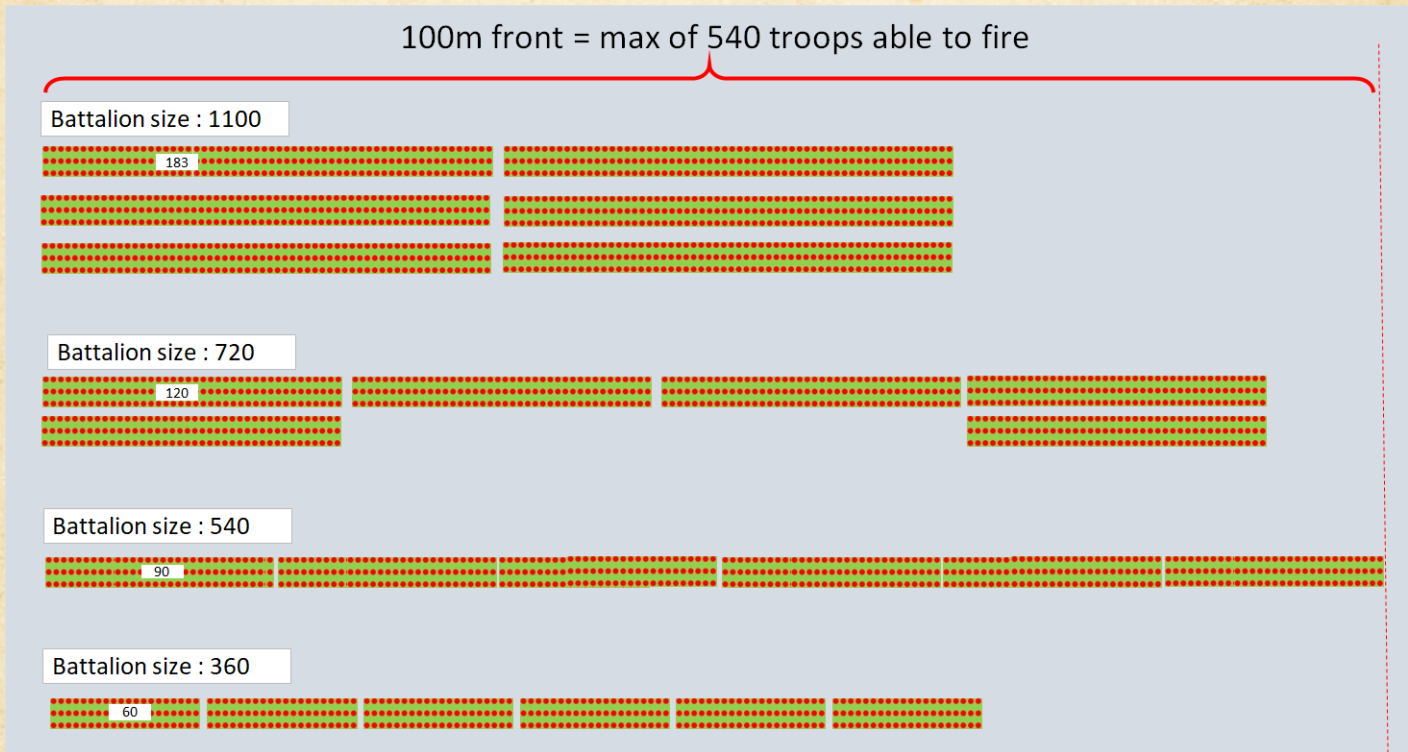
As a consequence, only the two forward companies are able to fire. The battalion's effective firepower is therefore reduced to 2196 ($183 \times 2 \times 6$), despite having 1100 men present.

[In fact, this formation resembles the so-called division masses formation used by the Austrians in 1809 and beyond. Battalion sizes of 800–1,000 men are common in the Austrian army in the 1809–1814 titles.]

This illustrates how the game engine calculates musket firepower at the company level within formed battalions. Although this process is not visible to players, understanding it can significantly improve deployment decisions in PBEM play and allow infantry to be used at maximum efficiency.

For comparison purposes, the image below shows four battalions of different sizes formed in line within a single hex, using a 1/3 Column Fire Modifier (meaning each battalion consists of 6 companies):

Image 7



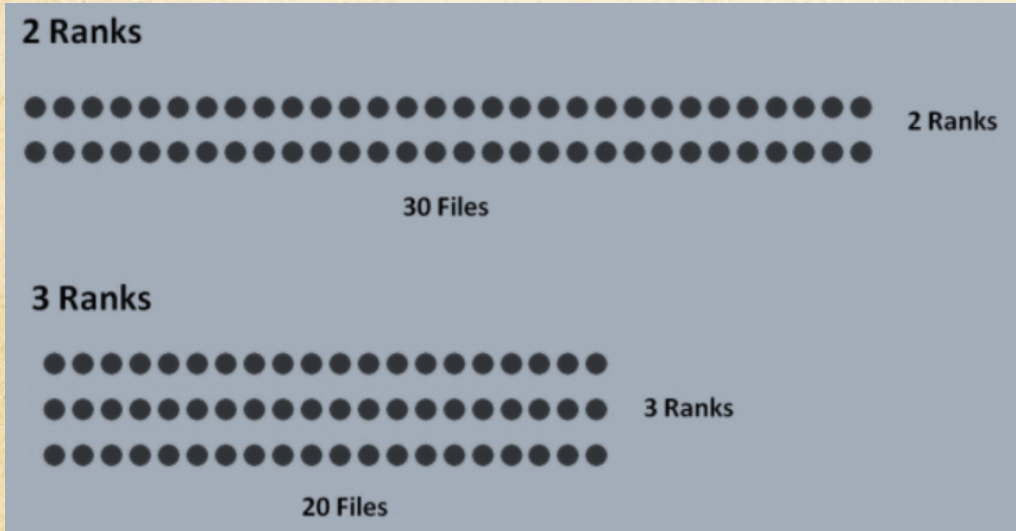
As demonstrated, a larger battalion does not necessarily generate higher firepower. It is not simply a matter of total manpower, but rather how many companies can be effectively deployed along the 100-meter frontage.

To summarize: in a 100-meter hex environment, more men do not always mean more fire. What matters is how many can actually shoot. Any battalion exceeding 540 men will suffer reduced effective firepower due to frontage constraints, meaning that a seemingly stronger formation can be outgunned and even routed by a smaller but properly sized unit.

3. 2-Rank Infantry

The previous section focused on 3-rank infantry formations. We now turn to the 2-rank formation used by British infantry. The image below illustrates two companies of 90 men each, shown in both 2-rank and 3-rank formations for comparison:

Image 8



In a 3-rank formation, only the first two ranks are able to fire, while the third rank is considered to be masked. As a result, only 60 of the 90 men can use their muskets (67%).

In contrast, a 2-rank formation allows all 90 men to fire. This represents 50% more firepower compared to the 3-rank formation (90 versus 60). The game engine reflects this by applying a +50% firepower modifier to 2-rank infantry which gives British infantry a tremendous advantage in FP, reflecting their superior firepower doctrine.

To put this into perspective, consider an elite British battalion of 360 men in line formation with an A-quality (+20%) modifier. Such a unit can generate up to 3888 FP. This level of output clearly indicates that these formations should rely primarily on musketry rather than being committed to melee.

There is, however, a downside. The 2-rank formation requires 50% more frontage to deploy the same number of troops compared to a 3-rank formation. In practical terms, a 2-rank battalion of 360 men can generate the same firepower as a 540-man 3-rank battalion. However, the 540-man unit is significantly more resilient in the battle line, while a 360-man battalion is far more vulnerable if engaged in melee.

4. Optimizing battalions for musket use

The key takeaway is that if the tactical situation demands musket use, it is advisable to choose a 540-sized battalion to engage the enemy for 3-rank infantry and a 360-sized battalion for 2-rank infantry.

For 3-rank battalions sized 541–648 men: to arrive at the optimal musket use size of below 540, players can simply detach a skirmish company to reduce the headcount below 541. This works for Non-restricted/Light/Guard infantry. Once detached, the light company should be positioned in front of the formed battalion (at the top of the stack) to contribute to the battalion's FP in open order formation.

For 649+ battalions: you can arrive at the optimal FP unit via two steps. Taking the example of 775 size battalion:

- Step 1: - go into extended line, ending up with two half battalions of 388 (a) and 387 (b)



- Step 2: Detach a skirmish company from one half battalion (a) and reattach it to the other half battalion (b), resulting in one battalion of 516 and another of 259. Step two is optional, but if you need a unit with decent FP, then a 516-sized unit is preferred over 387. This step only works for Non-restricted/Light/Guard infantry.

Image 10



- Step 3: Half battalion [b] of 259 troops can detach another light company and position it in front of the half battalion [a]. This would result in the following units within the hex, from top to bottom of the stack: a light company of 129 [being 775/6] in skirmish formation, half battalion [a] of 516 troops formed in line, and half battalion [b] of 130 formed in line.

Image 11



It's important to note that going into the extended formation takes two turns. Take advantage of the time in the next PBEM battle if you have large battalions stationed in the reserve. Assign them to the reorganization task to optimize the battalion structure. There is also an upside in fatigue accumulation when going into extended, as fatigue points are spread amongst more counters minimising the odds of going over to medium/high fatigue levels.