Hot Water Fuel Gauge

The Smart Hot Water controller generates a hot water ‘fuel gauge’ percentage value that can be displayed on the DisplaySmart-Touch or DisplaySmart-Dial.

This value is calculated on information from the two sensors on the cylinder.

The controller assumes the sensors are placed 1/3 from top for the upper sensor and the lower 1/3 from the bottom.

The hot water gauge works a little differently than most level gauges in that it displays known useful hot water.

If the tank reads “0%” then there might still be 1/3 hot water remaining (depending on temperature of that upper 1/3). This is your reserve and controller action is most likely needed to maintain the supply of hot water, useful in avoiding cold showers.

You could think of this like a cars fuel gauge; when the needle is on ‘E’ the car will usually travel on quite some distance before the engine finally runs out of fuel. It gives you time to react and fill the tank with fuel.

The software gives you the best idea of how much useful hot water is in your cylinder. Most of the time the accuracy is very good, especially when heating, but under some circumstances, especially when there is hot water draw off from an already hot cylinder and if the controller has decided no heating is required at the time, then it is possible to periodically have mismatches up to around 25% (percentage calculation mismatch, not temperature readings). It is important to note this mismatch is transitory and most of the time the accuracy is closer to or better than 5%.

For example; the cylinder was 60% just before you had your morning shower. Then after a moderate shower the reading dropped to say 10%. For the length of shower this seems like an extraordinary large draw off. So what really happened?

Given that your shower used hot water volume measured against the lower 2/3rds of the cylinder with a worst case mismatch of approximately 25% and you most likely used at least 25% of the true hot water then 25 + 25 = 50%

60% initial volume – 50% = 10% remaining. This mismatch is only transitory, only under this circumsatnace and will soon self correct over the day to less than 5% mismatch.

*It is important to note there is no real connection between hot water fuel gauge % and the control of the hot water heating. The control works on an entirely different method using advanced software so it is difficult to predict how the Smart Hot Water controller will react based on what the hot water fuel gauge is reading. This new control method is based on ‘do you have enough hot water’ combined with a technique we call ‘stratification control’©.