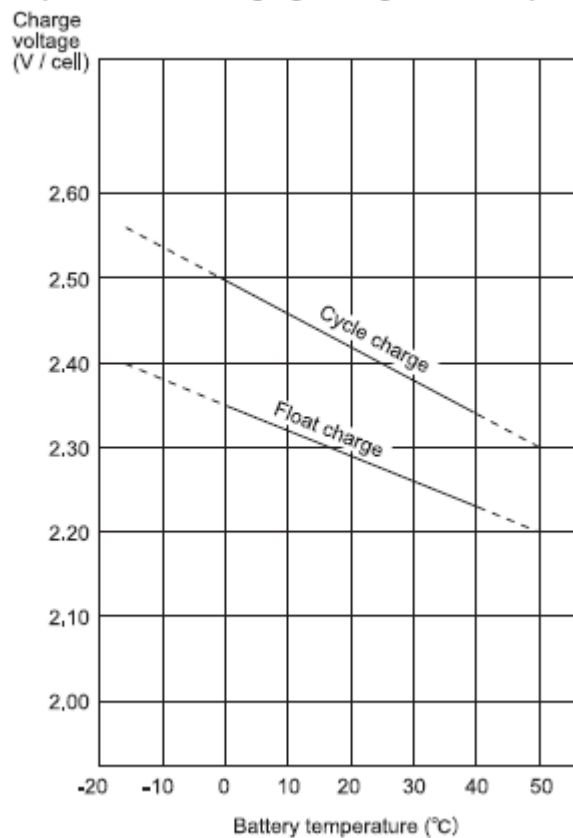


Temperature Compensation

As temperature rises, electrochemical activity in a battery increases and conversely decreases as temperature falls. Therefore, as the temperature rises, the charging voltage should be reduced to prevent overcharge and increased, as the temperature falls, to avoid undercharge. In general, in order to attain optimum service life, the use of a temperature compensated charger is recommended. The recommended compensation factor is $-3 \text{ mV}/^\circ\text{C}/\text{Cell}$ (for floating/standby) and $-4 \text{ mV}/^\circ\text{C}/\text{Cell}$ (cyclic use). The standard centre point for temperature compensation is 25°C . The graph below shows the relationship between temperatures and charging voltages in both cyclic and float/standby applications

Relationship Between Charging Voltage and Temperature



In practice where there are short term temperature fluctuations between 5°C and 40°C temperature compensation is not absolutely essential. However, it is desirable to set the voltage at a value shown in the above graph which as closely as possible, corresponds to the average ambient temperature of the battery during its service life. When designing a charger equipped with temperature compensation, the temperature sensor must sense only the temperature of the battery. Therefore, consideration should be given to thermally isolating the battery and temperature sensor from other heat generating components in the system.