

BPSK (Binary Phase Shift Keying) * How it works: BPSK is the simplest form of PSK. * BPSK: Offers better power efficiency (can work well in noisy environments) but sacrifices spectral efficiency. The Trade-off The main trade-off between QPSK and BPSK is between spectral efficiency and power efficiency: * QPSK: Offers better spectral efficiency (more bits per second per Hertz of bandwidth) but sacrifices some power efficiency. * Spectral Efficiency: QPSK is more spectrally efficient than BPSK. This means QPSK requires a higher SNR to achieve the same bit error rate (BER) as BPSK. * Spectral Efficiency: BPSK is not spectrally efficient. QPSK (Quadrature Phase Shift Keying) * How it works: QPSK uses four phases to represent data. It transmits 2 bits per symbol, doubling the data rate for a given bandwidth. * Power Efficiency: QPSK is less power-efficient than BPSK. While it's still reasonably power-efficient, the symbols are closer together in phase compared to BPSK