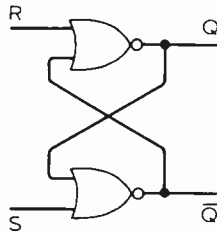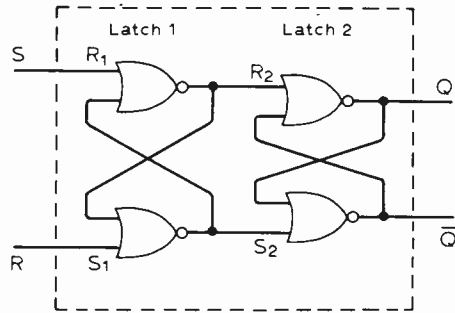# Three-function RS latch

A standard RS latch as shown in (a) responds to an input at both SET and RESET by bringing both outputs low. An alternative latch, shown in (b), can be used in cases where non-complement outputs are undesirable. When RS is 00, latch 1 and hence latch 2 will not change. When RS is 01, latch 1 resets which sets latch 2. By symmetry, RS at 10 causes latch 2 to reset. With RS at 11, both outputs of latch 1 are forced low. However, two low inputs at latch 2 will not alter the output. A similar latch may be constructed using cross-coupled NAND gates.

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(a)

(b)