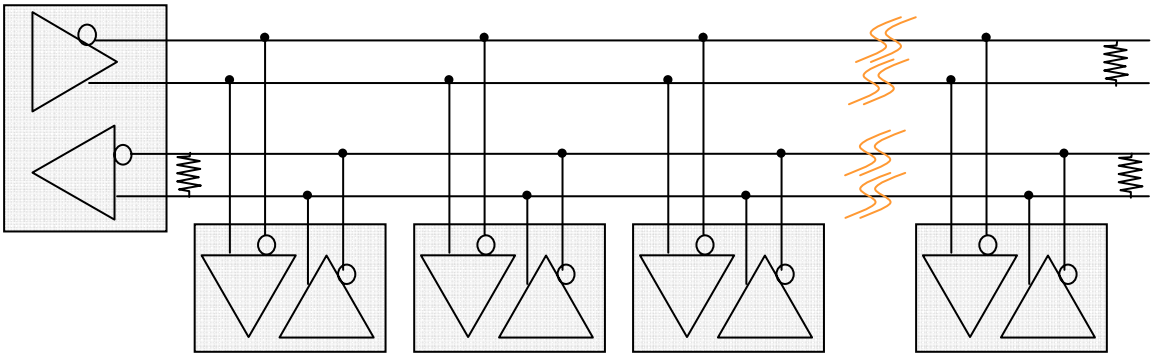
Bi-directional, Full Duplex (4 wire)

The 4-wire topology simplifies bus arbitration in multi-node RS-485. A single Master node is the only driver allowed on the topmost wire pair. All other nodes listen to all data traffic that passes on the "party-line" type multi-drop bus. Nodes may transmit on the lower pair of wires when addressed by the master node or by using a token-passing bus arbitration scheme.

The master node may drive its bus while any of the slave-nodes are driving the lower pair, making this 4-wire network a full-duplex communication channel. All communication occurs from master to slave or slave to master, so any peer to peer communications must be routed through the master node.

"Four Wire" Full-Duplex Network



Suggested Sipex Devices	Product Description
SP491E	5V, Full Duplex RS-485 Transceiver
SP1491E	5V, High Speed Full Duplex Transceiver
SP3491	3V, RS-485 Full Duplex Transceiver
SP3070E, SP3073E	3V, Full Duplex with slew-rate limiting, 1/8th Load
SP3076E	3V, High Speed Full Duplex, 1/8th Load
SP3080E, SP3083E	5V, Full Duplex with slew-rate limiting, 1/8th Load
SP3086E	5V, High Speed Full Duplex, 1/8th Load

A 4-wire topology can simplify the problem of bus arbitration. The master node is the only driver allowed on the topmost pair. All other nodes transmit on the lower pair only when given permission. If bus contention does occur on the lower pair the master node can command all slave-nodes to stop driving.