BALANCE LINE, LADDER LINE, TWIN LEAD, WINDOW LINE

Twin-lead cable is a two-conductor flat cable used as a balanced transmission line to carry radio frequency (RF) signals. It is constructed of two stranded or solid copper or copper-clad steel wires, held a precise distance apart by a plastic (usually polyethylene) ribbon. The uniform spacing of the wires is the key to the cable's function as a transmission line; any abrupt changes in spacing would reflect some of the signal back toward the source. The plastic also covers and insulates the wires. It is available with several different values of characteristic impedance, the most common type is 300 ohm.

Twin lead is mainly used as an antenna feedline at shortwave and VHF frequencies, to connect radio receivers and transmitters to their antennas. It can have significantly lower signal loss than miniature flexible coaxial cable, the main alternative type of feedline at these frequencies; for example, type RG-58 coaxial cable loses 6.6 dB per 100 metres (330 ft) at 30 MHz, while 300 ohm twin-lead loses only 0.55 dB.[1] 300 ohm twin lead is widely used to connect FM radios to their antennas, and was previously used to connect television antennas to televisions until it was replaced by coaxial cable. However, it is more vulnerable to interference; proximity to metal objects will inject signals into twin-lead that would be blocked out by coaxial cable. It therefore requires spacing around rain gutters, and standoff insulators along metal support masts.

DX HAM RADIO SUPPLY							
Part Number	Stated Impedance	Actual Impedance	Stated Velocity Factor	Actual Velocity Factor	AWG	Strands	Jacket
LL300-18	300	300	.91	.88	20	7/28	PE
LL450-551	450	405	.91	.902	18	1/18	PE
LL450-552 FX	450	379	.91	.917	16	19/29	PE
LL450-553	450	397	.91	.902	18	18/19	PE

Ladder line or "window line" is a variation of twin lead which is constructed similarly except that the polyethylene webbing between the wires which holds them apart has rectangular openings ("windows") cut in it. So the line consists of two insulated wires with bands of plastic holding them together every few inches, giving it the appearance of a ladder. The advantage of the windows is that they lighten the line, and also reduce the amount of surface on which dirt and moisture can accumulate, making ladder line less vulnerable to weather-induced changes in characteristic impedance. The most common type is 450 ohm ladder line, which has a conductor spacing of about an inch. ref. wikipedia.org
Balanced Ladder Transmission Lines are available in several types, including; 300 ohm, 450 ohm solid conductors, and 450 ohm flexible, stranded conductors.

Reference Wikipedia