Video Transmitter/Receiver (Balun): 1VP-A (BNC)

The 1VP-A balun (passive transformer) is designed to transmit video signal from an unbalanced (75 ohm) output to an unbalanced (75 ohm) video input, via a twisted pair of UTP, FTP, or STP cable, using one device on each end of the transmission line (unless the video input is to cooperate with a multi-channel device). Due to slim shape it integrates well with the source and the receiver of the signal. The transformer matches the impedance of coaxial video output (75 ohm) to the impedance of the balanced line (100 ohm), ensuring proper video transmission over distances up to 400 m (category 5 cable).

The installer should pay attention to connecting the appropriate leads to the correct terminals: (+) to (+) and (-) to (-). Improper connection will cause interference.

Name	1VP-A
Code	**M16655**
Range	400 m
Standard level at coaxial input / output (CVBS, 75 Ω)	1 Vpp
Insertion loss	-0.5 dB (f=5MHz)
Band	0...50 MHz (-3 dB)
CMRR (dB @ 5MHz)	60
Impedance of coaxial input / output	75 Ω
Impedance of balanced output / input	100 Ω
Coaxial connector	BNC male plug
Symmetrical connector	screw terminals
Operating temp. / relative humidity	0ºC...+55ºC / <95%
Weight	0.016 kg
Dimensions (W x H x D)	15 x 15 x 47 mm

CMRR in video transformers (baluns). "Balun" is the short for "Balance-Unbalance", in CCTV applications meaning a transformer for changing the transmission medium from a coaxial cable to a twisted pair, and vice versa. The biggest advantages of using balanced transmission cables are lower costs, higher resistance to external interferences, and possibility of using longer transmission lines. Due to identical arrangement of the two wires of a balanced line, the interferences are also the same and can be cancelled in a differential balanced input of the receiver. It is not possible in the case of a coaxial transmission line.

The ability of a video transformer to cancel the common interferences identical in both wires is characterized by Common Mode Rejection Ratio (CMRR). It is the ratio of the error signal at the asymmetric output of the transformer to the interference on the both balance inputs. The parameter can be measured, for example, by applying high, common interference signal V_z to the both balance inputs (i.e. shorted, to eliminate a differential signal). Under such conditions, an ideal transformer would not provide any signal on its unbalanced output, but the real device will demonstrate a V_b value. The CMRR is calculated using the following formula:

$CMRR = 20*LOG(V_b/V_z)$

The CMRR of Etrix baluns (in the 15 kHz to 6 MHz range) is **60 dB**. It means that they attenuate the common signals (interferences) **1000** times.