

## Video Transmitter-Receiver Set: 1VAP (BNC, DC-2.1/5.5)



View of the set



View of the packaging

The set is designed to transmit video (using baluns) and power from a single source via a twisted-pair cable, usually UTP CAT5e. Each of the two units is equipped with BNC plug (one of them on a flexible cable), and 2.1/5.5 power connector (complementary pair).

### Specifications:

Name	1VAP
Code	152-012
Range (video)	400 m

Insertion loss	-0.5 dB (f=5 MHz)
Bandwidth	0 ... 50 MHz
CMRR (dB @ 5MHz)	50
Input/output impedance (coaxial)	75 Ω
Input/output impedance (UTP)	100 Ω
Coaxial connectors	BNC male plug
UTP connectors	RJ-45
Weight	0.02 kg
Dimensions (W x H x D)	15x33x24 mm
BNC lead (length)	14 cm
DC power lead (length)	14 cm

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:

$$CMRR = 20 * \text{LOG}(V_b/V_z)$$

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.