

IQ Jumper Cable Patent

By Mike Tsinberg - June 23, 2017

On January 6, 2015 Key Digital received a patent US 8,930,610 B2 for the invention of a method to transmit RS232 or IR control signals over standard HDMI cable.

- **US Patent Office Filing**

Key Digital is manufacturing this product in a form of HDMI Female to Male 12 inch Jumper cable - KD-IQJUMP12FM:

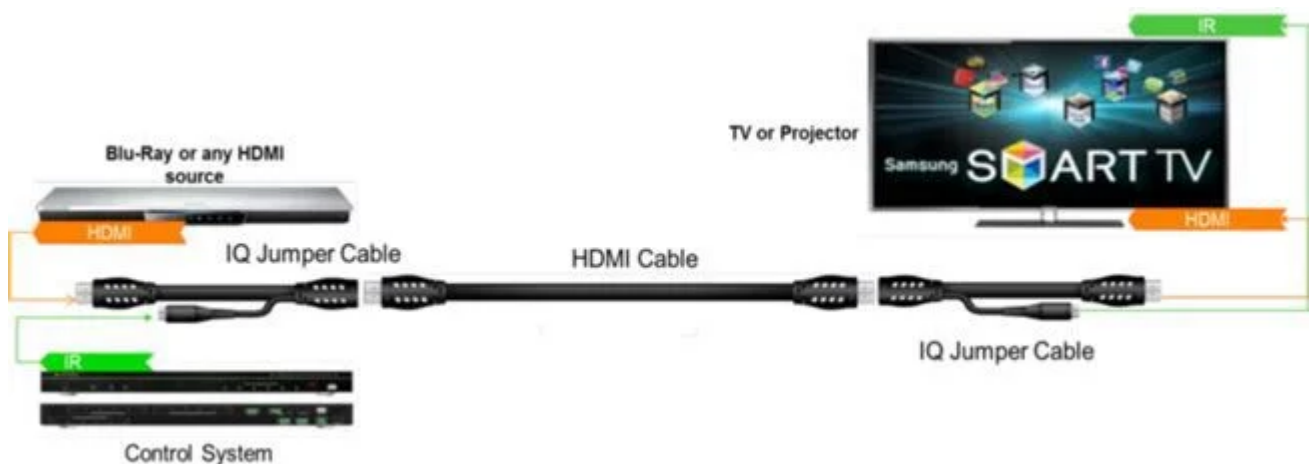


This product has a few unique features for ProAV integrators:

Re-use CEC and ARC lines for one way (either way) IR or bidirectional RS232 for control of Consumer electronic devices:

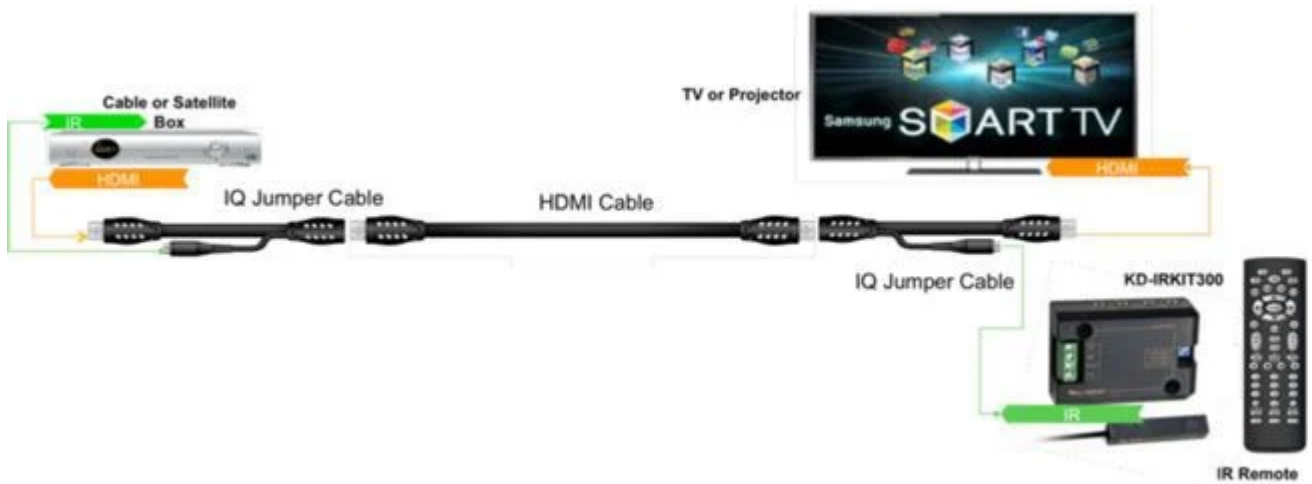
The CEC and ARC data lines have limited uses in ProAV field. For control Integrators prefer IR or RS232 that are standard control formats widely supported by all AV equipment. Since these formats are wide spread and can be uniformly applied to ANY brand they are globally established control formats in ProAV. The IQ Jumper cable is equipped with 3.5 mm stereo female jack mounted on a short "pigtail" wire attachment to the HDMI cable with build in mechanical auto-switch. When the 3.5 mm male jack is plugged into this 3.5 mm cable attachment, the mechanical switch inside switches internal CEC and/or ARC lines to external IR or RS232 signal. This way this jumper cable allows integrator to send IR or RS232 signal inside HDMI cable instead of adding additional wiring for control.

Below (Picture 1) is a simple application demonstrating use of this cable.



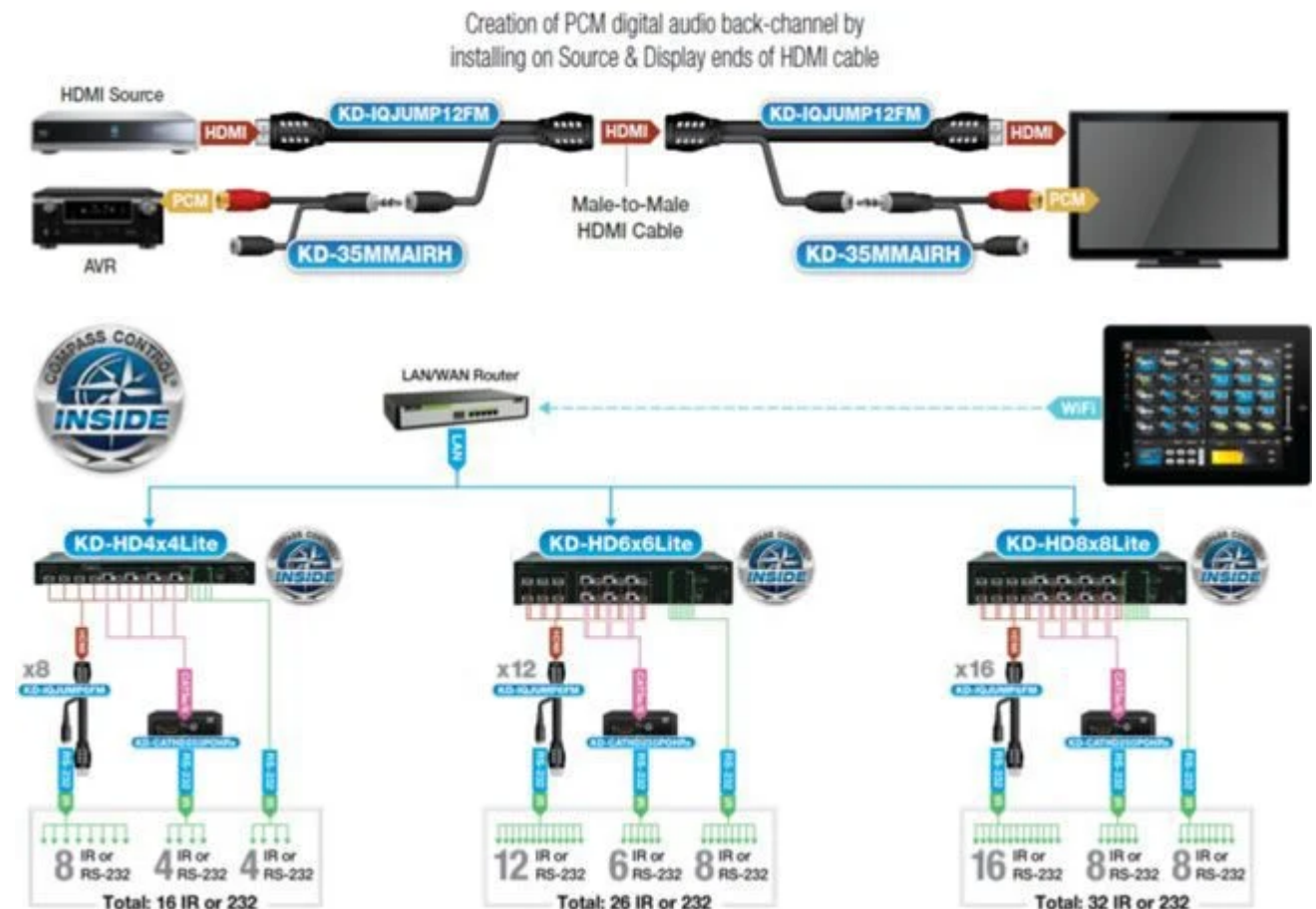
Blu-Ray Player or any other HDMI source send HDMI AV through the cable and continue to communicate with TV via Hot Plug, EDID and HDCP links. The control system is sending IR or RS232 signals via the same HDMI cable to TV or Projector. No extra control cable wiring is needed. This way adding of two IQ jumper cables can extend control through the same HDMI cable already installed.

Picture 2 shows reverse use of IQ Jumper cables.



IR command can be captured by KD-IRKIT300 and IR sensor from any ordinary remote and send upstream to Cable STB or any other hidden HDMI source in order to control that source.

Picture 3 shows a different use of IQ cables for audio return from a TV display that is not equipped with a control system but has audio output to AV receiver.



Using this architecture Key Digital Lite switchers can act as master controllers. For example KD-HD8x8Lite offers 16 control ports through HDMI ports and IQ cable, 8 ports through HDBaseT outputs and Rx extenders and 8 stand alone ports totaling 32 ports to control 32 different devices directly from iOS panel programmed with Compass Control project.