

Instructions



40-101 Gen3 QAM Modulator

Note! Please read all documentation thoroughly before planning your installation, Calrad assumes to responsibility for low quality, inferior cabling, specification changes, errors or omissions. Please visit our website for all the latest information.

For technical assistance
call: 323-465-2131

Technology

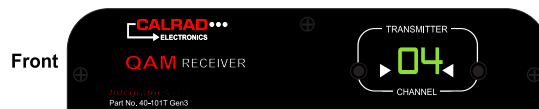
Calrad 40-101 Gen3 HDMI 1080P Video over RF (QAM): This Digital Extender transmission system is bidirectional and provides HDTV signals over various industry standard cables, RG59, RG6, Cat5e, Cat6 cables. Our technology will even support legacy cabling including component video, analog audio and HDMI cables. Refer to our cable and frequency charts before your installation to determine the distances possible with specific cable types. It is possible to use the same cabling to send signals bi-directionally from any connected **40-101 Gen3** devices. Create point to point connectivity, series connectivity, parallel connectivity or mixed connectivity. The **40-101 Gen3** system can create a virtual matrix switcher over a single wire system. Individual IR channel control is available from the transmitter or receiver IR Inputs. Control is possible by using the local IR receiver or by connecting the optional **40-IRC** interface adapter for control by external automation systems. Using various accessories, adapters, splitters and interface hardware, multiple solutions can be created for small and large signal delivery applications. the **40-101 Gen3** devices works with all Calrad HDMI splitters, switches and converters.

Product Details, Visit Calrad's Website www.calrad.com for additional information and applications info.

40-101 Gen3 (IR) Transmitter

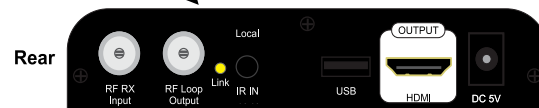


40-101 Gen3 (IR) Receiver



Channel Setting Buttons, Red
2 Digit L.E.D. Channel Display

Yellow Signal Link
L.E.D. Indicator
Channel Setting Buttons, Green
2 Digit L.E.D. Channel Display

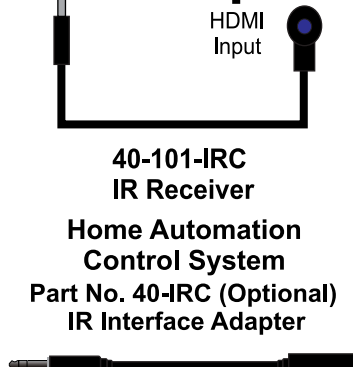


RF In/Out
Jacks
IR Input
Control
Jack
USB
Port
5Vdc
Power
Input
HDMI
Input

RF In/Out
Jacks
IR Input
Control
Jack
USB
Port
5Vdc
Power
Input
HDMI
Output



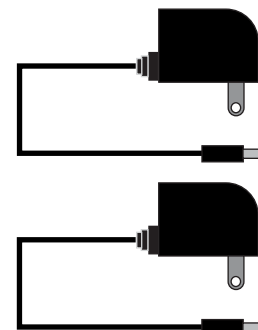
75-720-20
20db Attenuator
(Included)



40-101-IRC
IR Receiver
Home Automation
Control System
Part No. 40-IRC (Optional)
IR Interface Adapter
These IR options
apply to both
Transmitter and Receiver



40-101G3P-Remote
(21 Button IR Remote)
Direct Channel
Access Buttons 0-9,
Channel +, - Up-Down,
F1-F6, OSD, ID, RST
Buttons



2 x 5Vdc
Power Supplies

Package Contents

- 1 x 40-101T Gen3, QAM Transmitter
- 1 x 40-101R, Gen3 QAM Receiver
- 1 x 40-101-IRC, IR Receiver
- 1 X 40-101G3P-Remote, 21 Button IR Remote
- 2 x 5Vdc-1A Power Supplies

Please note!
Discrete IR codes
are available
from Calrad's
website

Additional QAM product information and
Remote IR HEX Codes are available for
Download from the Calrad Website

www.calrad.com

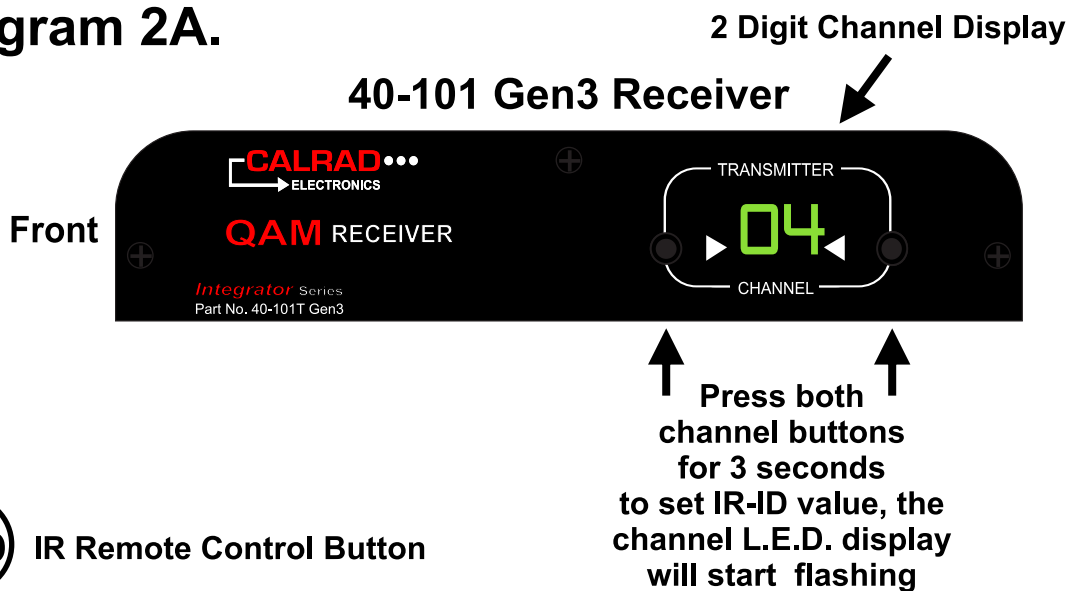


IR Remote Control Button

Global - Addressable IR-ID Channel Control

Both the 40-101T Gen3 Transmitter and the 40-101R Gen3 receiver can be controlled globally from a single IR port or independently from any 3rd party control system from a single IR port. The units have the ability to have unique IR-ID address that can be changed in the field to be specific to each unit or programmed with the same IR-ID addresses to create groups. To access and set the unique IR-ID number settings on transmitters and receivers, press and hold the channel up + channel down buttons for 3 seconds, the display will start flashing. The 2 digit display while flashing will time out in 3 seconds if nothing is entered, the timeout period will be extended each time you press the channel buttons to set the proper IR-ID address. Global commands are sent directly using the 0-9, +, -, RST buttons using the IR remote control. Individual addressable IR-ID channel commands are sent using the IR remote control as follows, **Example control receiver IR-ID set to (01)**: Press (ID) + press (1) L.E.D. display flashes until channel number is entered + press the channel number (04). See diagram 2A. below.

Diagram 2A.



IR Remote Control Button

OSD, On Screen Display (Receiver)

Pressing the OSD button on the IR remote will open the On Screen Display menu that will display what channel the QAM receiver is set to, 00-99. The channel OSD will also be displayed anytime the channel is changed.



IR Remote Control Button

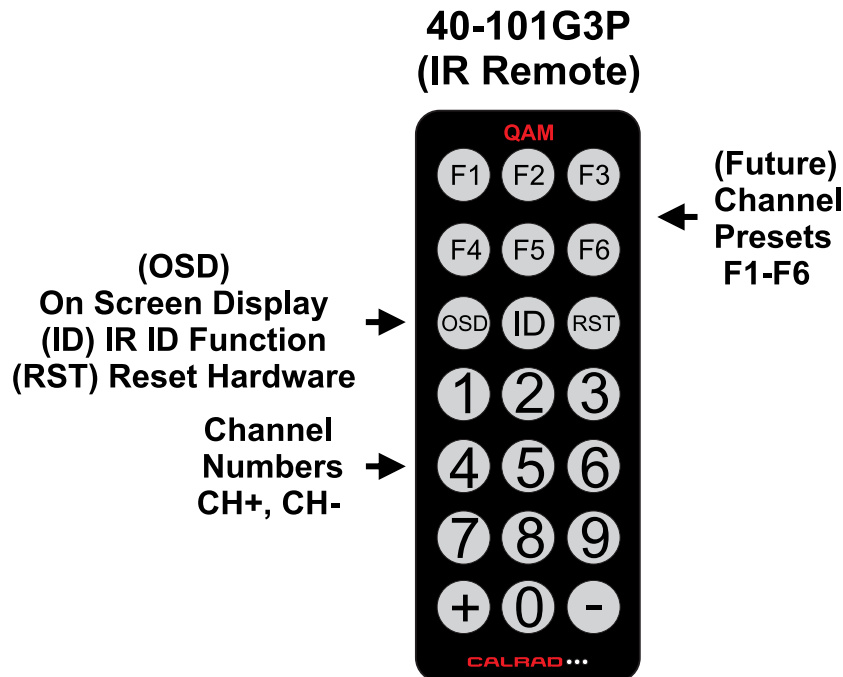
Global - Addressable (RST) Reset Functions, IR Remote

The reset function provides the ability to send a global reset command to re-power, reset all connected 40-101 Gen3 hardware in case of RF signal or HDMI connectivity issues. Using the (ID) function with the (RST) function individual units can be reset independently, Example: Reset a transmitter with IR ID set to number 1, . Global Reset, all units connected and to the same IR zone. Press (RST) on the remote control and all units will show (--) on the front panel L.E.D. display for 4 seconds, when finished all units will return to their perspective channels.

Front Panel Button Lockout

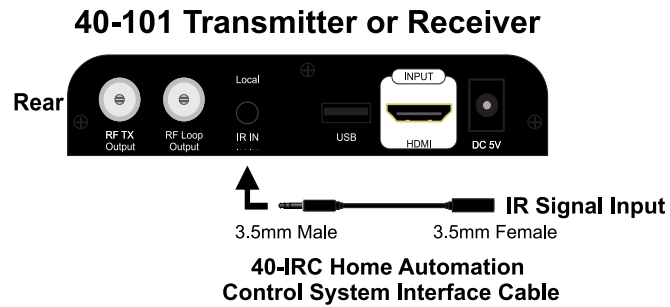
(Enabling Front Panel Button Lockout) Press and hold the left channel set button for 3 seconds, this will engage the front panel channel lock function and two round decimal indicators will appear in the display. This function will prevent the front panel channel selection buttons from working or being changed by accidental handling. **(Disabling Front Panel Button Lock)** Press and hold the right channel set button for 3 seconds, this will disengage the front panel channel lock function and the two round decimal indicators will disappear from the display. This function will allow the front panel channel selection buttons to work again.

IR Remote Control

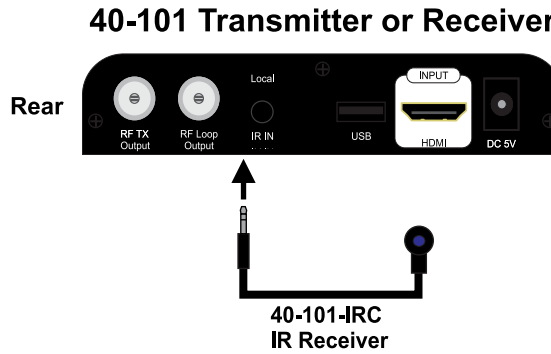


IR Connectivity

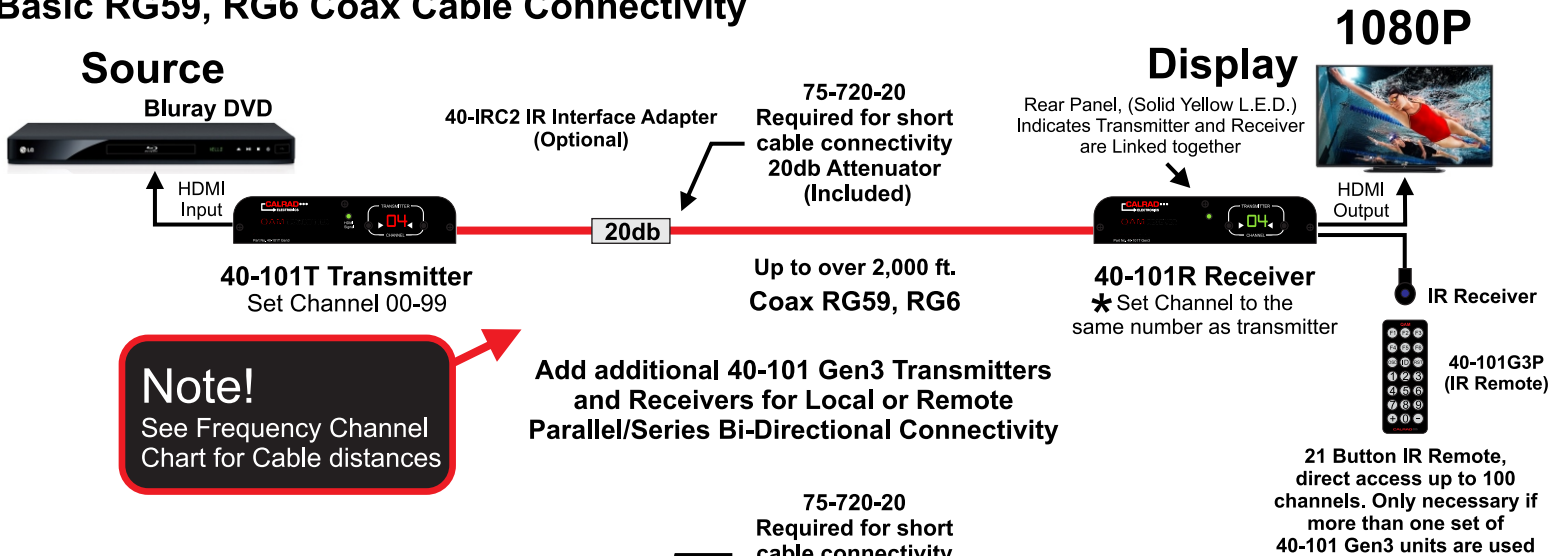
Automation Interface (IR)



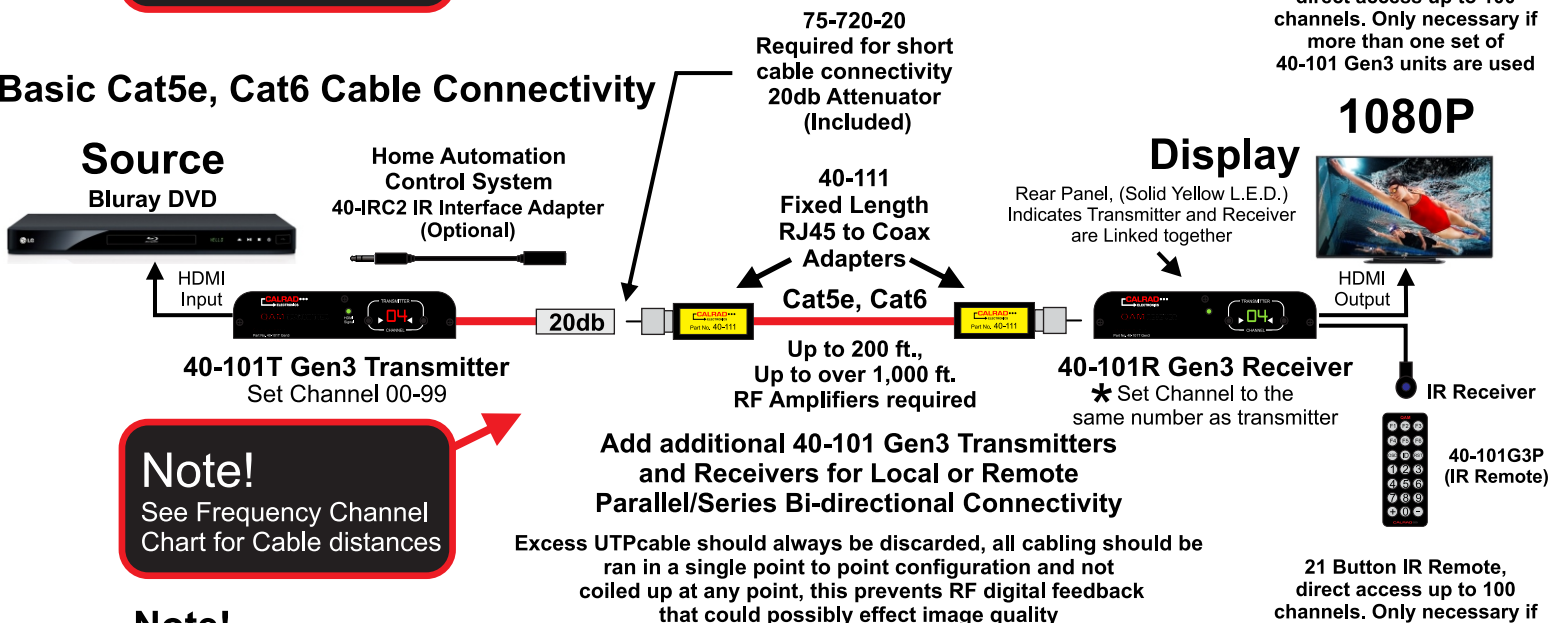
Local (IR) Control Interface



Basic RG59, RG6 Coax Cable Connectivity



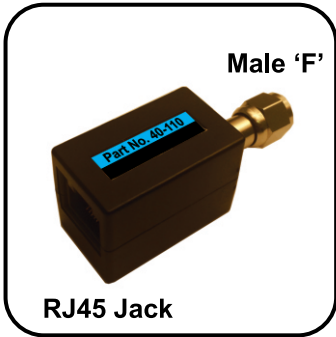
Basic Cat5e, Cat6 Cable Connectivity



Note!

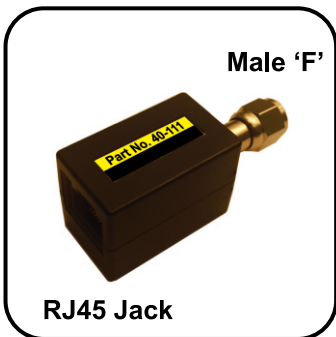
Please visit Calrad's website for all the various hardware elements and possible configurations

Interface Accessories



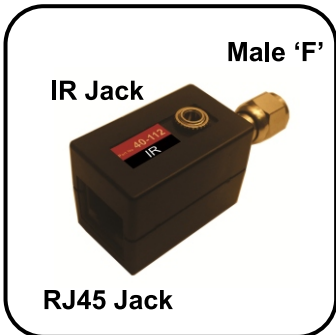
**40-110
Adjustable Distance
RJ45 to Coax
Adapter**

Use this adapter to send QAM RF signals over Cat5e, Cat6 cable. Use 1 pair or all 4 pairs of the RJ45 Jack to deliver signal, Use the 3 additional pairs of the cable to deliver other signals, the extra pairs can be used for IR, RS232, Audio, Video signals, etc. Provides a scaleable solution for mixing different signals over one cable. See the frequency channel chart for further details. Male 'F' to RJ45 female. Sold in pairs.



**40-111
Fixed Length
RJ45 to Coax
Adapter**

Use this adapter to send QAM RF signals over Cat5e, Cat6 cable. Uses all 4 pairs of the RJ45 Jack to deliver signals for maximum distances. See the frequency channel chart for further details. Male 'F' to RJ45 female. Sold in pairs.



**40-112
Fixed Length
RJ45 to Coax
Adapter with
3.5mm IR Jack**

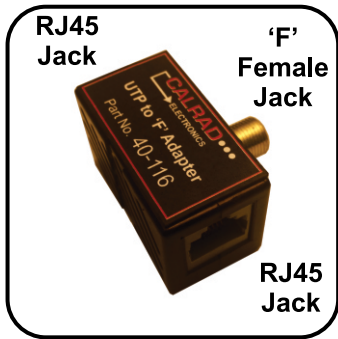
Use this adapter to send QAM RF signals over Cat5e, Cat6 cable. Uses 3 pairs for QAM signal and 1 pair for bi-directional IR control signals, 3.5mm Jack. See the frequency channel chart for further details. Male 'F' to RJ45 female. Sold in pairs.



**40-113
Fixed Length
RJ45 to Coax
Adapter Balun**

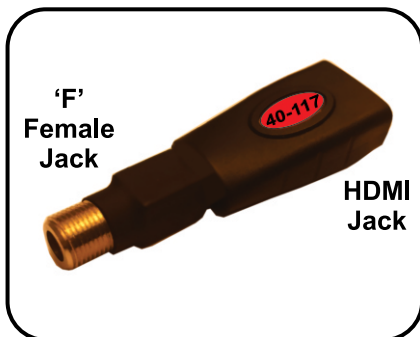
Use this adapter to send QAM RF signals over Cat5e, Cat6 cable. Uses 1 pair with built-in circuitry for minimizing outside AC, RF interference. Uses 2 terminal self crimping terminals to deliver the signal. Use the 3 additional pairs of the cable to deliver other signals, the extra pairs can be used for IR, RS232, Audio, Video signals, etc. Provides a scaleable solution for mixing different signals over one cable. See the frequency channel chart for further details. 'F' female Jack to RJ45 female. Sold in pairs.

Interface Accessories



40-116
Cat5e, Cat6
UTP Inline Tap

Use this bi-directional adapter to extend QAM RF signals over Cat5e, Cat6 cable. RJ45 in/out jacks deliver RF signals in a series configuration from transmitter to transmitter, receiver to receiver. See the frequency channel chart for further details. Female 'F' jack to two RJ45 female jacks. Sold in pairs.



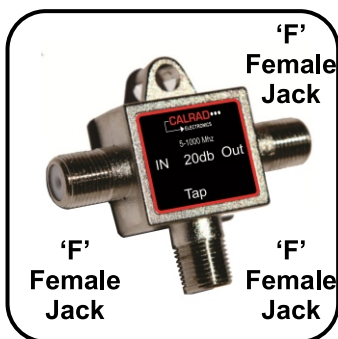
40-117
'F' Female to
HDMI Female
Adapter

Use this adapter to send QAM RF signals over existing legacy and current HDMI cables. Good for up to 100 ft.. Female 'F' jack to HDMI female jack. Sold in pairs.



40-118
Cat5e, Cat6
UTP Inline Tap
With a 3.5mm
IR Jack

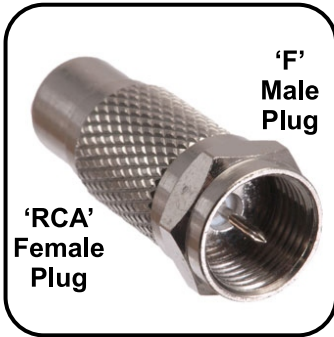
Use this adapter to extend QAM RF signals over Cat5e, Cat6 cable. RJ45 in/out jacks to deliver RF signals in a series configuration from transmitter to transmitter, receiver to receiver with bi-directional IR. See the frequency channel chart for further details. Good for up to 250 ft. Cat5e, Cat6. Female 'F' to 2 x RJ45 female jacks, 1 x 3.5mm IR jack. Sold in pairs.



75-727D-Value
Inline Directional
Coax RF Taps
(Series RF Signal
Configurations)
3, 6, 9, 12,
16, 20, 24db

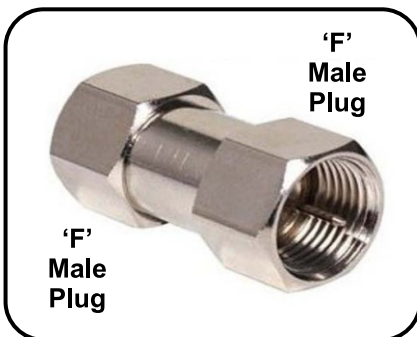
Use this adapter to send QAM RF signals over RG59, RG6 cable in series or by using adapters signals can be converted and used with UTP Cat5e, Cat6 cables. These RF taps provide a fixed control over various cable types and lengths based on signal loss from accessories and hardware to create a balanced signal delivery system. Available in 3, 6, 9, 12, 16, 20, 24db drops. Sold individually.

Interface Accessories



75-522
RCA Female to
'F' Male Adapter

Used for connecting to existing Legacy Audio, Composite, Component Video Cables to transmit QAM signals. Female RCA Jack to 'F' Male adapter. Most inexpensive shielded audio cables are good up to 100 ft. for signal transmission, shielded component or composite video cables can reach up to over 200 ft.



75-565
'F' to 'F' Male
Adapter

Use this adapter to make convenient low loss, short connections between all the QAM hardware and accessories instead of using coax cables. 1" metal Male 'F' to 'F' connectors.



75-568
75 Ohm Male 'F'
Terminator

Use this adapter to terminate any open RF port on a splitter, tap or adapter to secure signal integrity. Male 'F' plug.



75-720-20
20 DB 'F' Type
Attenuator

The 20db attenuator is included with the 40-101 Gen3 and is used for short cable lengths under 25ft. for coax cable, under 50 ft. for UTP Cat5e, Cat6 cable.

Use this adapter to balance signals after passing the QAM signal thru a RF distribution amplifier. Available in different values.

75-720-, 3 db attenuator
75-720-6, 6 db attenuator
75-720-8, 8 db attenuator
75-720-10, 10 db attenuator
75-720-16, 16 db attenuator

UTP Cabling ● Measurements based on solid Cat5e, Cat6 cabling, all pairs used, distances will vary from each cable manufacture

Coax Cabling ● Measurements based on solid center conductor shielded RG59U, RG6U coax cable.

Frequency Channel Chart (Distance with no Amplification or Attenuators used)

CH 0-99	Frequency (Mhz)	Cable Type 50 ft.	Cable Type 100 ft.	Cable Type 250 ft.
00	177.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
01	142.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
02	149.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
03	156.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
04	163.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
05	177.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
06	184.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
07	191.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
08	198.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
09	205.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
10	212.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
11	219.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
12	226.5	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6
13	410	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
14	418	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
15	426	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
16	434	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
17	442	Coax, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
18	450	Coax, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
19	458	Coax, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
20	466	Coax, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
21	474	Coax, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
22	482	Coax, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
23	490	Coax, Cat6	Coax, Cat5e, Cat6	Coax, Cat6
24	498	Coax, Cat6	Coax, Cat5e, Cat6	Coax, Cat6

For distances over 250 ft. of direct connectivity or large scale integration of Calrad's QAM technology, please visit our website or consult with our technical support team, (323) 465-2131.

www.calrad.com

UTP Cabling ● Measurements based on solid Cat5e, Cat6 cabling, all pairs used, distances will vary from each cable manufacture

Coax Cabling ● Measurements based on solid center conductor shielded RG59U, RG6U coax cable.

Frequency Channel Chart (Distance with no Amplification or Attenuators used)

CH 0-99	Frequency (Mhz)	Cable Type 50 ft.	Cable Type 100 ft.	Cable Type 250 ft.
25	506	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
26	514	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
27	522	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
28	530	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
29	538	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
30	546	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
31	554	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
32	562	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
33	570	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
34	578	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
35	586	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
36	594	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
37	602	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
38	610	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
39	618	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
40	626	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
41	634	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
42	642	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
43	650	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
44	658	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
45	666	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
46	674	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
47	682	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
48	690	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
49	698	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax

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CH 0-99	Frequency (Mhz)	Cable Type 50 ft.	Cable Type 100 ft.	Cable Type 250 ft.
50	706	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
51	714	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
52	722	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
53	730	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
54	738	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
55	746	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
56	754	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
57	762	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
58	770	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
59	778	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
60	786	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
61	794	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
62	802	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
63	810	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
64	818	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
65	826	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
66	834	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
67	842	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
68	850	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
69	858	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
70	866	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
71	874	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
72	882	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
73	890	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
74	898	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax

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Frequency Channel Chart (Distance with no Amplification or Attenuators used)

CH 0-99	Frequency (Mhz)	Cable Type 50 ft.	Cable Type 100 ft.	Cable Type 250 ft.
75	906	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
76	914	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
77	922	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
78	930	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
79	938	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
80	946	Coax, Cat5e, Cat6	Coax, Cat5e, Cat6	Coax
81	240	Coax, Cat5e, Cat6	Coax, Cat6	Coax
82	250	Coax, Cat5e, Cat6	Coax, Cat6	Coax
83	260	Coax, Cat5e, Cat6	Coax, Cat6	Coax
84	270	Coax, Cat5e, Cat6	Coax, Cat6	Coax
85	280	Coax, Cat5e, Cat6	Coax, Cat6	Coax
86	290	Coax, Cat5e, Cat6	Coax, Cat6	Coax
87	330	Coax, Cat5e, Cat6	Coax, Cat6	Coax
88	340	Coax, Cat5e, Cat6	Coax, Cat6	Coax
89	350	Coax, Cat5e, Cat6	Coax, Cat6	Coax
90	360	Coax, Cat5e, Cat6	Coax, Cat6	Coax
91	370	Coax, Cat6	Coax	Coax
92	380	Coax, Cat6	Coax	Coax
93	390	Coax, Cat6	Coax	Coax
94	400	Coax, Cat6	Coax	Coax
95	410	Coax, Cat6	Coax	Coax
96	420	Coax, Cat6	Coax	Coax
97	430	Coax, Cat6	Coax	Coax
98	440	Coax, Cat6	Coax	Coax
99	474	Coax, Cat6	Coax	Coax

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Troubleshooting

No Power (Transmitter or Receiver): (1.) Use the other 5Vdc power supply on the QAM device being tested to verify if the current power supply unit is not working or to verify if the QAM device is bad.

No Video with 1:1 Connection: (1.) Verify the transmitter and the receiver are on the same channel. (2.) Verify the yellow link L.E.D. indicator on the rear of the receiver is solid indicating signal connection between the transmitter and receiver and that it is not flashing intermittently or not illuminated at all. (3.) Verify that the signal is not too strong feeding the 40-101 receiver by checking that the cable distance is not too short which can provide too much signal to the receiver. (4.) Make sure the HDMI Green signal indicator on the front of the Transmitter is on and a good HDMI source is connected. (5.) Power off the transmitter and the receiver for 15 seconds, then re-apply power. (6.) Check for proper HDMI connectivity on both the transmitter and receiver, Check RF Transmitter-Receiver cables and adapters if used. (7.) Verify the coax cable or UTP cable used between the transmitter and the receiver is wired correctly and is connected properly. (8.) If the cables used are under 50 ft., it may be necessary to use the in line 20db attenuator, Part number 75-720-20 which is included in the box, place the attenuator in series with the cable at the transmitter side.

Choppy or Intermittent Video: (1.) Poor RF cable connectivity, cable distance exceeded for the type of cable used. (2.) Check for poor connections or defective adapters on the transmitter, receiver RF jacks. (3.) The frequency used has exceeded the distance using coax or UTP Cat5e, Cat6 cables, (4.) Lower the channel setting, see the frequency chart pages 8-11 for proper cable distances. If you experience signal delivery issues using UTP Cat5e, Cat6 cables use low frequency channels 0-12 or 81-90.

No external IR Control using the 40-IRC adapter: (1.) Verify the IR signal is present feeding the adapter and you are sending the proper IR commands. (2.) Connect the **40-101-IRC** IR receiver and use the **40-101G3P-Remote** to verify the IR jacks on the **40-101 Gen3** transmitter and receiver are working correctly. If both transmitter and receiver works, the **40-IRC** adapter cable is most likely defective.

No external IR control using the 40-101-IRC, IR receiver and 40-101G3P-Remote, IR remote: (1.) Check to make sure the plastic battery protector is removed from the bottom back of the remote. (2.) Verify the battery is good and installed properly. (3.) Make sure the 3.5mm plug is securely seated into the IR jack of the Transmitter or Receiver.

Specifications

Non-Volatile Memory: All Channel and IR-ID data values are retained during a power loss or removal of DC power

Video Resolutions Supported Input\Output: 480i@60hz, 480p@60hz, 720p@50/60hz, 1080i@50/60hz, 1080P@50/60hz

Video Encoding: H.264, **Audio Encoding:** MPEG2, Supports PCM 44.1K, 48K Stereo 2.1 (L / R)

RF Frequency: 100-1000Mhz 100 channels

Effective Bit Rate: Max 31.6M bits

Insertion Loss: <2dbm

Transmission Delay: 500ms

Video Input\Output Connectors: 24pin HDMI Female Jacks

RF Connectors: RF TX (RF TX Loop Output), RF RX (RF RX Loop Output): F-61 Female (75 Ohm 'F' Type)

USB Ports: Transmitter\Receiver Type 'A' female Jack

IR Connectors (Transmitter\Receiver): 3.5mm Stereo Jack

DC Power Connector: 2.1mm Power Coax Jack (Center Positive)

DC Power: Individual Power Supplies 2 x 5Vdc-1Amp

Current Draw: Transmitter (400ma), Receiver (300ma)

Transmitter\Receiver Connectivity, Status: Receiver Rear Panel only (Yellow L.E.D.)

Digital Displays: Transmitter, dual 7 segment Red L.E.D. Digital Display, receiver, dual 7 segment Green L.E.D. Digital Display

Control Buttons: Front Panel (Channel Up, Channel Down)

Remote Control Battery Type: CR2025

Case Size Transmitter, Receiver: L-5.125" x W-3.25" (Includes Connectors) x H-0.96"