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Find the *QRF QRBA* at our website: ***Click HERE***

Quality RF Services, Inc.
850 Parkway Street
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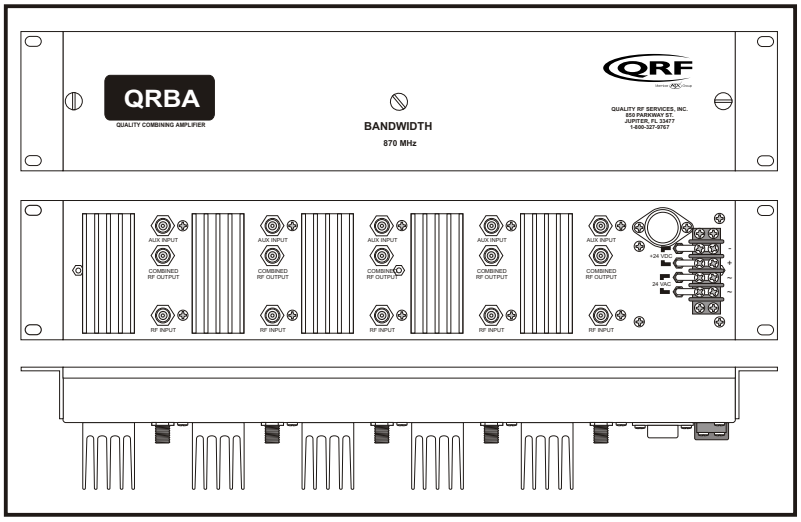
HEADEND ISOLATION AMPLIFIERS

QRBA • QRCIA

Quality Racked Channel Insertion Amplifiers
550 MHz • 750 MHz • 870 MHz

** *Features* **

- **Newest Hybrid Technology**
- **FIVE Independent Amplifiers**
- **Plug-in hybrids & accessories**
- **>55 dB Combining Isolation**
- **Power-Doubled Options***
- **U.L. Approved Transformer**
- **3.5-inch Rack Mount Design**



The **QRBA** is our second generation of isolation amplifiers for headend combining use. The 3.5-inch rack mount chassis comes with up to five well-shielded circuit boards with bandwidths up to 870 MHz.

Each of the independent RF amplifiers utilizes a **single hybrid** with impedance match to a built-in 15 dB directional coupler assembly (optional 10 dB coupler available upon request). Mounting the coupler after the hybrid inside the amplifier chassis reduces the number of cables and outboard directional couplers in the headend cable lash-up. Each amplifier also has a forward facing RF output test point calibrated at -30 dB. The input equalizer and pads are accessed via the front cover. All RF connections are rear facing and easily accessed from the front of the rack due to the shallow depth of the chassis. Each hybrid has a separate heat sink for optimum cooling.

Input signals from a "master" channel line up are coupled through an optional pad and equalizer and amplified by the hybrid gain stage. This gain stage provides nominal forward gain, but more importantly, offers reverse isolation typically equal to the gain of the hybrid plus 5 dB. The reverse isolation of the hybrid combined with the directional isolation of the 15 dB coupler can provide 55 dB or more isolation for forward broadcast signals to each path.

The **QRBA** is used as the last amplifier before feeding the trunk or laser outputs from the headend. Franchise or node-specific channels of video or digital signals may be reused in many different areas of the cable system. **QRBA** prevents signal feedback that can cause co-channel interference with similar channels on the same frequencies fed to other trunks or fiber nodes. This allows clear local access channels, customized advertising insertion channels, RF modems and telco signals to be sent to targeted franchise areas.

QRCIA is the same amplifier with a 13 dB hybrid followed by a 13 dB output pad for **unity gain** and maximum isolation. **QRBA** also uses 17 and 21 dB push-pull hybrids. **QRBA power-doubled*** units allow only **2 or 3** amplifiers per chassis using 19 or 22 dB power-doubled hybrids.

Both **QRCIA** and **QRBA** include a 50 VA external Class II power transformer. User supplied DC powering is a standard option on both models. This accomplishes two objectives:

A. Heat reduction within the amplifier housing.
B. Use of a U.L. approved power transformer.

QRF continues to provide flexible and state-of-the-art technology at the lowest possible price.

(800) 327-9767 **561-747-4998** **www.qrf.com** **FAX: (561) 744-4618**

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HEADEND ISOLATION AMPLIFIERS

QRBA-QRCIA (See note 1)	550 MHz		750 MHz			870 MHz				
Gain (dB)	13,17,21	19 P	13,17,21	19 P	19 GP	13,17,21	16 G	19 P	19 GP	22 GP
Technology (see note 3)	Si PP	Si PD	Si PP	Si PD	G PD	Si PP	G PP	Si PD	G PD	G PD
Response (+/-dB)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Channel Loading	77	77	110	110	110	128	128	128	128	128
Gain Ctrl. Range (dB)	PAD	PAD	PAD	PAD	PAD	PAD	PAD	PAD	PAD	PAD
Slope Ctrl. Range (dB)	EQ	EQ	EQ	EQ	EQ	EQ	EQ	EQ	EQ	EQ
Return Loss (dB)	16	16	15	15	15	15[4]	15	15	15	15
Noise Figure (dB)	7.0	7.0	8.0	8.0	4.0	8.0	4.0	8.0	4.0	6.0
Insertion to out port Isolation (dB)	15	15	15	15	15	15	15	15	15	15
Insertion to in port Isolation (dB)	55	55	55	55	55	55	52	55	55	57
Output Level (dBmV)	+30	+36	+30	+36	+40	+30	+38	+36	+40	+40
CTB (-dB)	87	79	81	77	77	76	71	72	72	71
CSO (-dB)	73	73	70	76	72	67	71	74	70	70
Power Dissipation @ 120 VAC (Watts)	41	41	41	41	41	41	41	41	41	41

Note 1. The **QRCIA** model has the same specs as the **QRBA** 13 dB gain unit. The addition of a 13 dB internal pad attenuates the signal after amplification which results in unity gain. This configuration increases the isolation of the auxiliary input to main RF input to greater than 62 dB. Order QRCIA(freq)-(number of modules), i.e., **ORCIA 750-05**.

Note 2. FLAT output levels with full analog channel loading are specified on all models.

Note 3. **Si**=silicon, **G**=GaAs, **PD**=power doubling, **PP**=push-pull.

Note 4. The 21 dB gain version only has 14 dB RL from 860 to 870 MHz.

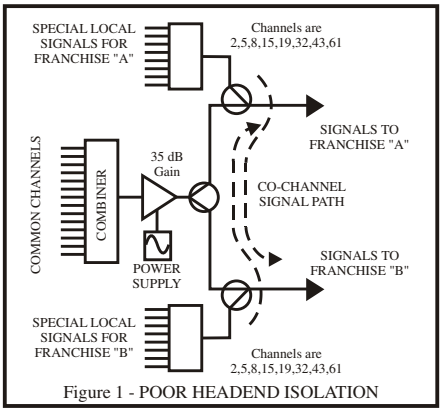
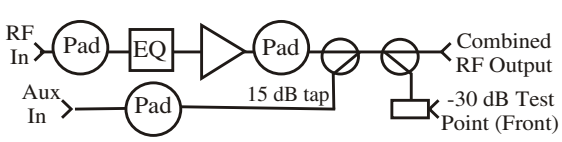


Figure 1 - POOR HEADEND ISOLATION



If your headend is wired similar to the one on the left, an amplifier can minimize RF feedback paths shown via the 2-way splitter in the common signal path.

Only two signal paths are shown. In a system with RF modems and telephony, this splitting process could go down to the node level or very small groups of nodes where QRCIA works best.

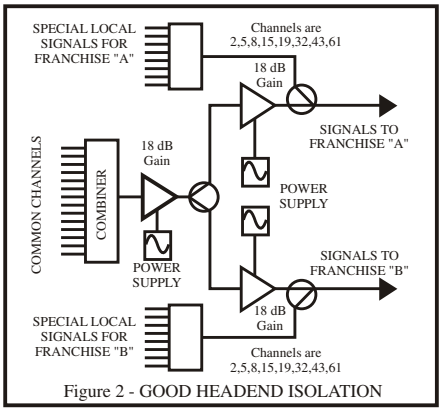


Figure 2 - GOOD HEADEND ISOLATION

ORDERING INFORMATION:

QRBA750-17/5 or **QRCIA750-05**
(1 = Frequency, 2 = Gain and/or number of amplifiers)

Visit www.qrf.com web site for a full list of model numbers with product descriptions.

Dimensions: 19.0" x 3.5" x 3.25"
Shipping Weight: 8 lbs.

OPTIONS and SPARES:

QAE 550-(dB)
QAE 750-(dB)
QAE 860-(dB) . . . **Forward EQ values from 0 to 21 dB in 1.5 dB steps (0 to 18 dB, 860 Mhz)**

QPML 750-(dB)
QPML 870-(dB) . . . **Linear forward EQ values from 0 to 18 dB in 1.5 dB steps**

JXP-A-** . . . . . Plug-in attenuator pads where ** is the value = 0 to 20 dB in 1 dB steps.

Part #951 . . . . . 50 VA class 2 power transformer

6/03

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