

# User Instruction Manual

## **IQSDA31**

Dual Channel 3G/HD/SD-SDI Equalizing Distribution Amplifier

## **IQSDA33**

3G/HD/SD-SDI Fan-out Distribution Amplifier

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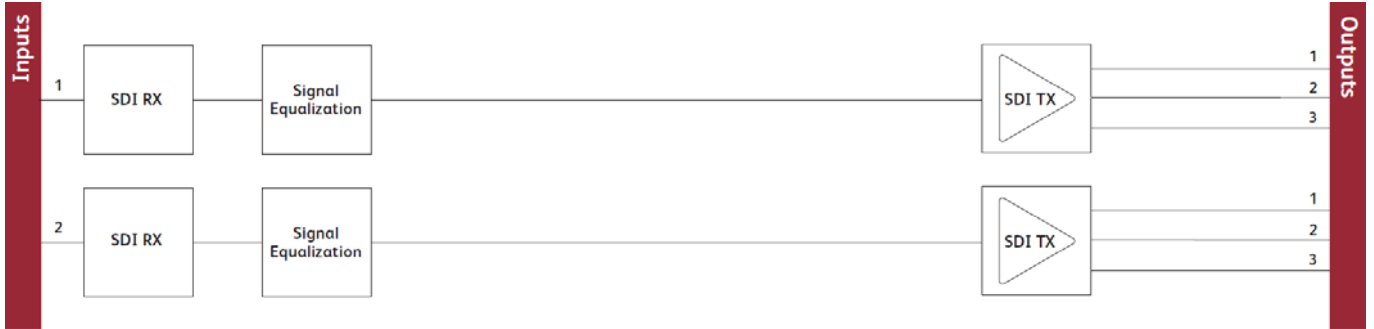
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# 1. Introduction

## 1.1 Module Description

### 1.1.1 IQSDA31

The IQSDA31 provides dual inputs with 3 outputs per input for distribution of HD-SDI 3 Gbit/s & 1.5 Gbit/s or 270 Mbit/s SD-SDI signals in a single width package. Its class leading input equalization performance and non re-clocking distribution of wide-band signals makes it ideal for all distribution applications.



### 1.1.2 IQSDA33

The IQSDA33 is a fan-out distribution amplifier for HD-SDI 3 Gbit/s, 1.5 Gbit/s or 270 Mbit/s SD-SDI signals providing 7 equalized outputs of the input in a single width package. Its class leading HD input equalization performance and non re-clocking distribution of wide-band signals makes it ideal for fan out distribution applications.



## 1.2 Order Codes

The following product order codes are covered by this manual.

**Note:** Modules with “A” order codes (for example, IQSDA3147-1A3) can be fitted into either A- or B-style enclosures. Modules with “B” order codes (for example, IQSDA3147-1B3) can only be fitted into B-style enclosures. See page 7.

### 1.2.1 IQSDA31

**IQSDA3147-1A3** Dual Channel 3G/HD/SD-SDI Equalizing Distribution Amplifier. 2 inputs, 3 outputs per input.  
**IQSDA3147-1B3**

**IQSDA3161-1A3** Dual Channel 3G/HD/SD-SDI Equalizing Distribution Amplifier with relay input bypass. 2 inputs, 2 outputs per input.  
**IQSDA3161-1B3**

### 1.2.2 IQSDA33

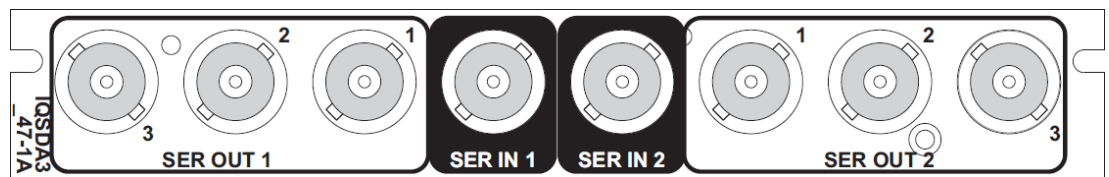
**IQSDA3347-1A3** 3G/HD/SD-SDI Fan-out Distribution Amplifier. 1 input, 7 outputs.  
**IQSDA3347-1B3**

**IQSDA3361-1A3** 3G/HD/SD-SDI Fan-out Distribution Amplifier. 1 input, 6 outputs, relay bypass.  
**IQSDA3361-1B3**

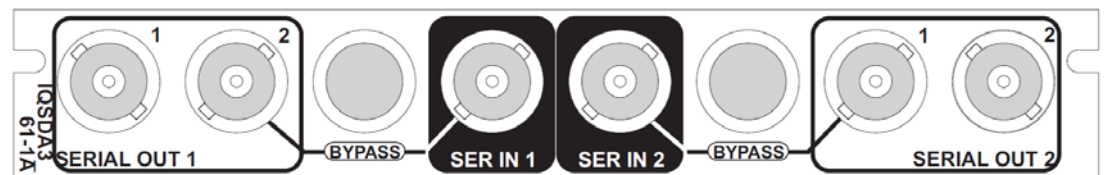
## 1.3 Rear Panel Views

The following rear panel types are available.

### 1.3.1 IQSDA31



**IQSDA3147-1A(B)3**



**IQSDA3161-1A(B)3**

**Note:** The input signal will bypass the module and be routed to the respective output in the event of module removal or power failure.

### 1.3.2 IQSDA33



**IQSDA3347-1A(B)3**



**IQSDA3361-1A(B)3**

**Note:** The input signal will bypass the module and be routed to the respective output in the event of module removal or power failure.

### 1.4 Enclosures

The module can be fitted into the enclosure types shown.

**Important:**

Although IQ modules are interchangeable between enclosures, their rear panels are enclosure specific. An IQH3B enclosure accepts modules with either “A” or “B” order codes. An IQH3A or IQH1A enclosure accepts modules with “A” order codes only. See page 5.

#### 1.4.1 B-style Enclosure



Enclosure order codes: IQH3B-S-0, IQH3B-S-P

#### 1.4.2 A-style Enclosures



Enclosure order code: IQH1A-S-P



Enclosure order codes: IQH3A-S-0, IQH3A-S-P



Enclosure order codes: IQH3A-E-0, IQH3A-E-P, IQH3A-0-0, IQH3A-0-P



Enclosure order code: IQH1A-S-P

## 1.5 Feature Summary

The IQSDA31 and IQSDA33 provide the following features.

### 1.5.1 IQSDA31

- Dual channel 3G-HD, HD-SDI, SD-SDI and wide-band distribution amplifier
- Equalizes up to 80m at 3Gbit/s, 100 m at 1.5 Gbit/s and up to 250 m at 270 Mbit/s of Belden 1694A cable
- Standards supported:
  - 3G-HD to SMPTE424M
  - HD-SDI to SMPTE292M
  - SD-SDI to SMPTE259M-C
- Relay Bypass option available
- Extremely compact – up to 32 channels in 3RU – for use where space is at a premium

### 1.5.2 IQSDA33

- 3G-HD, HD-SDI, SD-SDI and wide-band distribution amplifier
- Equalizes up to 80m at 3 Gbit/s, 100m at 1.5 Gbit/s and up to 250m at 270 Mbit/s of Belden 1694A cable
- Standards supported:
  - 3G-HD to SMPTE424M
  - HD-SDI to SMPTE292M
  - SD-SDI to SMPTE259M-C
- Extremely compact – up to 7 outputs of the input in a single width allowing 16 modules in 3RU or 4 in 1RU – for use where space is at a premium



## 2. Technical Specification

### 2.1 IQSDA31

<b>Inputs and Outputs</b>	
<b>Signal Inputs</b>	
SDI Inputs	2 x
Input Cable Length	Up to 250 m Belden 1694A @ 270 Mbit/s Up to 100 m Belden 1694A @ 1.5 Gbit/s Recommended for local fan out distribution only at 3 Gbit/s
<b>Signal Outputs</b>	
SDI Outputs	x 3 per input
<b>Controls</b>	
<b>Indicators</b>	
Power	OK (Green)
<b>Card Edge Controls</b>	
Slew Rate Switch	SD/HD
<b>Specifications</b>	
Electrical	1.5 Gbit/s HD-SDI, SMPTE 292M 270 Mbit/s SDI, SMPTE 259M-C
Connector / Format	BNC/ 75 Ohm panel jack on standard Snell connector panel
Return Loss	>-15 dB (270 Mbit/s, 1.5 Gbit/s) >-10 dB (3 Gbit/s)
<b>Power Consumption</b>	
Module Power Consumption	3 W max (A Frames) 4 W max with relay rear (A Frames) 3 PR (B Frames) 3 PR max with relay rear (B Frames)

## 2.2 IQSDA33

<b>Inputs and Outputs</b>	
<b>Signal Inputs</b>	
SDI Inputs	1 x
Input Cable Length	Up to 250 m Belden 1694A @ 270 Mbit/s Up to 100 m Belden 1694A @ 1.5 Gbit/s Recommended for local fan out distribution only at 3 Gbit/s
<b>Signal Outputs</b>	
SDI Outputs	x 7 (6 on the Relay Bypass version)
<b>Controls</b>	
<b>Indicators</b>	
Power	OK (Green)
<b>Card Edge Controls</b>	
Slew Rate Switch	SD/HD
<b>Specifications</b>	
Electrical	1.5 Gbit/s HD-SDI, SMPTE 292M 270 Mbit/s SDI, SMPTE 259M-C / DVB-ASI
Connector / Format	BNC/ 75 Ohm panel jack on standard Snell connector panel
Return Loss	>-15 dB (270 Mbit/s, 1.5 Gbit/s) >-10 dB (3 Gbit/s)
<b>Power Consumption</b>	
Module Power Consumption	3 W max (A Frames) 3 PR (B Frames)

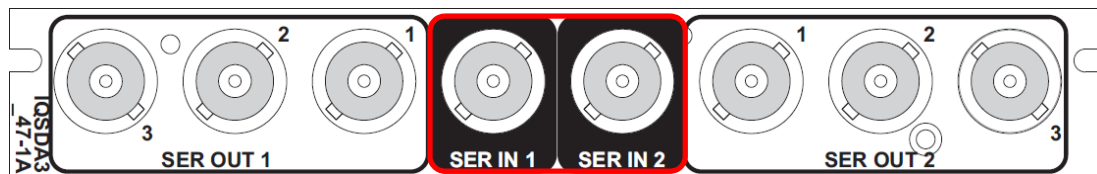
### 3. Connections

This section describes the physical input and output connections provided by the IQSDA31 and IQSDA33.

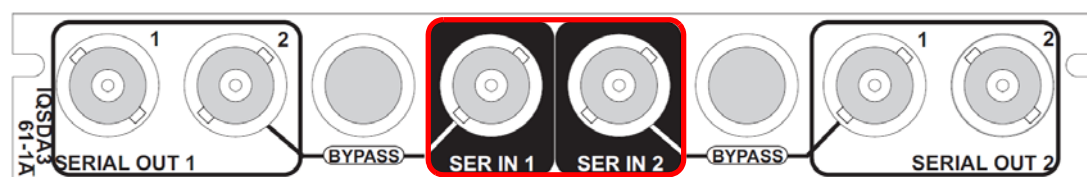
#### 3.1 IQSDA31

##### 3.1.1 Inputs

Serial digital input to the unit is made via 2 BNC connectors, which terminate in 75 Ohms.



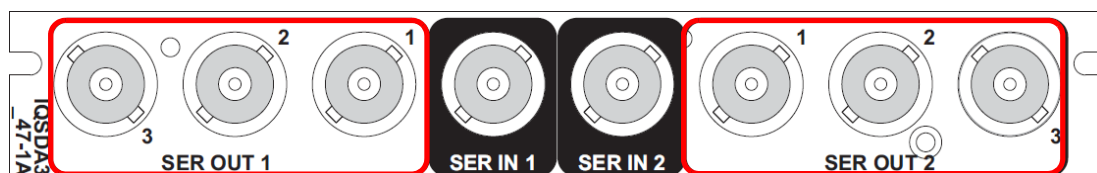
**IQSDA3147-1A(B)3**



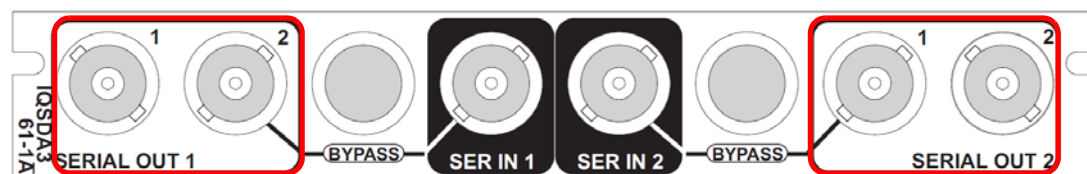
**IQSDA3161-1A(B)3**

##### 3.1.2 Outputs

Serial digital output from the unit is made via 6 BNC connectors, 3 per input (4 on Relay Bypass version, 2 per input), which terminate in 75 Ohms. Outputs 1 and 3 are DVB-ASI compatible (Serial Out 1, output 1 and Serial Out 2, output 2 on Relay Bypass Version).



**IQSDA3147-1A(B)3**



**IQSDA3161-1A(B)3**

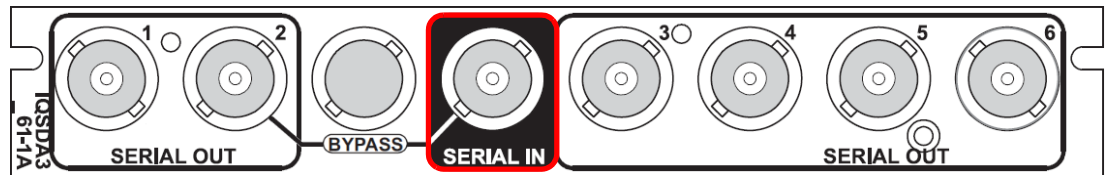
### 3.2 IQSDA33

#### 3.2.1 Input

Serial digital input to the unit is made via a single BNC connector, which terminates in 75 Ohms.



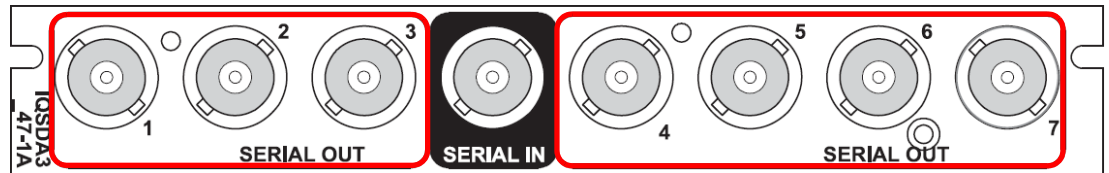
**IQSDA3347-1A(B)3**



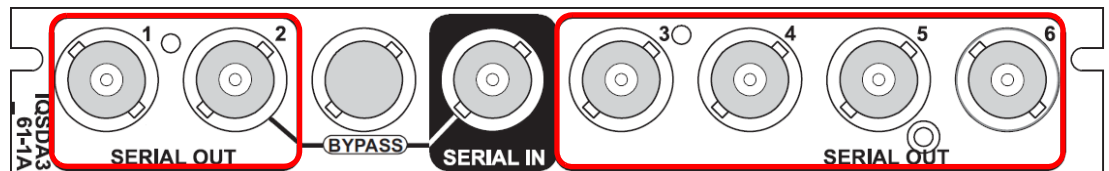
**IQSDA3361-1A(B)3**

#### 3.2.2 Outputs

Serial digital output from the unit is made via 7 BNC connectors (6 on Relay Bypass version), which terminate in 75 Ohms. Outputs 1, 3, 5, and 7 are DVBASI compatible (1, 4, and 6 on Relay Bypass version).



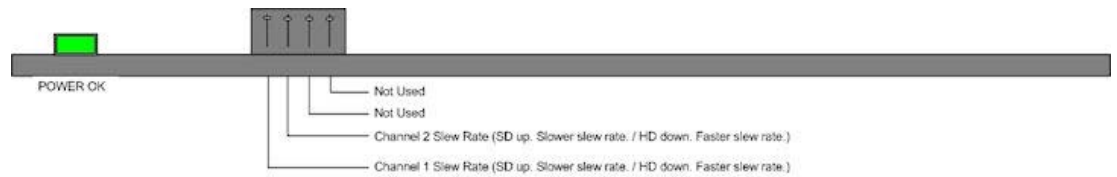
**IQSDA3347-1A(B)3**



**IQSDA3361-1A(B)3**

## 4. Card Edge LEDs

The LEDs on the edge of the module indicate its operating status.



**Note:** Channel 2 slew rate switch on IQSDA31 only.

LED	Color	Description
<b>Power OK</b>	Green	This indicator is illuminated when a positive power supply is present.
<b>DIP Switches</b>	N/A	<p>The DIP switches on the card control the slew rate. Numbered from left to right, their functions are as follows:</p> <ul style="list-style-type: none"> <li>• <b>Switch 1:</b> Channel 1 slew rate. This switch should be positioned UP for SD sources (slower slew rate) and DOWN for HD sources (faster slew rate).</li> <li>• <b>Switch 2:</b> Channel 2 slew rate (IQSDA31 only). This switch should be positioned UP for SD sources (slower slew rate) and DOWN for HD sources (faster slew rate).</li> <li>• <b>Switch 3:</b> Not used.</li> <li>• <b>Switch 4:</b> Not used.</li> </ul>