



The IQDSK01 provides a simple and straightforward linear or luma keying capability for SD-SDI video streams. The unit provides a dedicated program output along with selectable preview/program outputs which include a clean feed option. Being transparent to ancillary data allows the IQDSK01 to pass any embedded audio or metadata and this combined with a short signal delay makes the module suitable for all operational environments. As well as operating with the RollCall control and monitoring system the IQDSK01 can interface with external systems using RS-422 control. When combined with Snell Kahuna switcher this allows seamless integration via the Kahuna control GUI enabling direct keying control and reporting.

# IQDSK01

## SD-SDI Linear Keyer

### Does this module suit your application?

- Background, Fill, and Key Inputs
- Linear and Luma Key Modes
- Dedicated Program output, and two independently selectable preview or program outputs
- 2 independently selectable preview outputs showing preview, program, program pre-fade, Background (clean feed), Fill, Key, Matte, pattern and Processed Key signals
- Fade to black on Program Output with adjustable duration
- Self-key capability using fill input to provide key signal
- Matte generation and capture
- Maintains valid output with background input fail, with option of switching to Fill input or Matte source
- Ancillary data can be passed from the Background input, Fill input or blanked
- Relay input bypass option - background to program output 1
- 2 GPIs and 1 GPI/O which can operate as a Tally output
- Remote trigger of Fade Up/Down action using GPI control
- External keyer control via RS422 interface on double width versions
- RollCall remote control and monitoring

### Why should you choose this module?

- Linear and luma key modes provides keying for a variety of sources
- External control via RS422 interface enables direct keyer control from production switchers like Snell Kahuna
- Key layer cut or fade operation for the program output enables flexibility for instant or timed transitions
- Selectable clean feed (Background) output for editing and archive purposes
- Emergency input to output bypass option allows added protection for critical signal paths or 24/7 operations

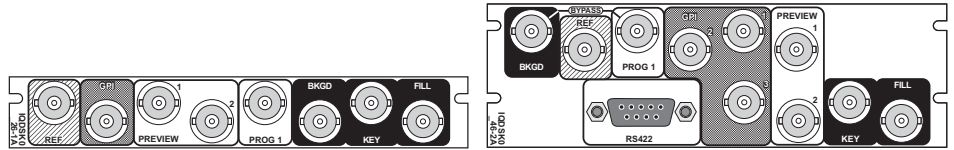
**Order codes for IQH3A/1A enclosures**

**IQDSK0126-1A**  
SDI Linear Keyer. 1 program,  
2 selectable preview SDI outputs.

**IQDSK0145-2A**  
SDI Linear Keyer. 1 program,  
2 selectable preview SDI outputs,  
external control interface via RS-422.

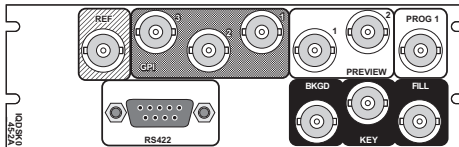
**IQDSK0146-2A**  
SDI Linear Keyer. 1 program,  
2 selectable preview SDI outputs,  
external control interface via RS-422,  
relay bypass for background input to  
program output.

For more details on enclosure  
types please refer to datasheet  
IQH3A.

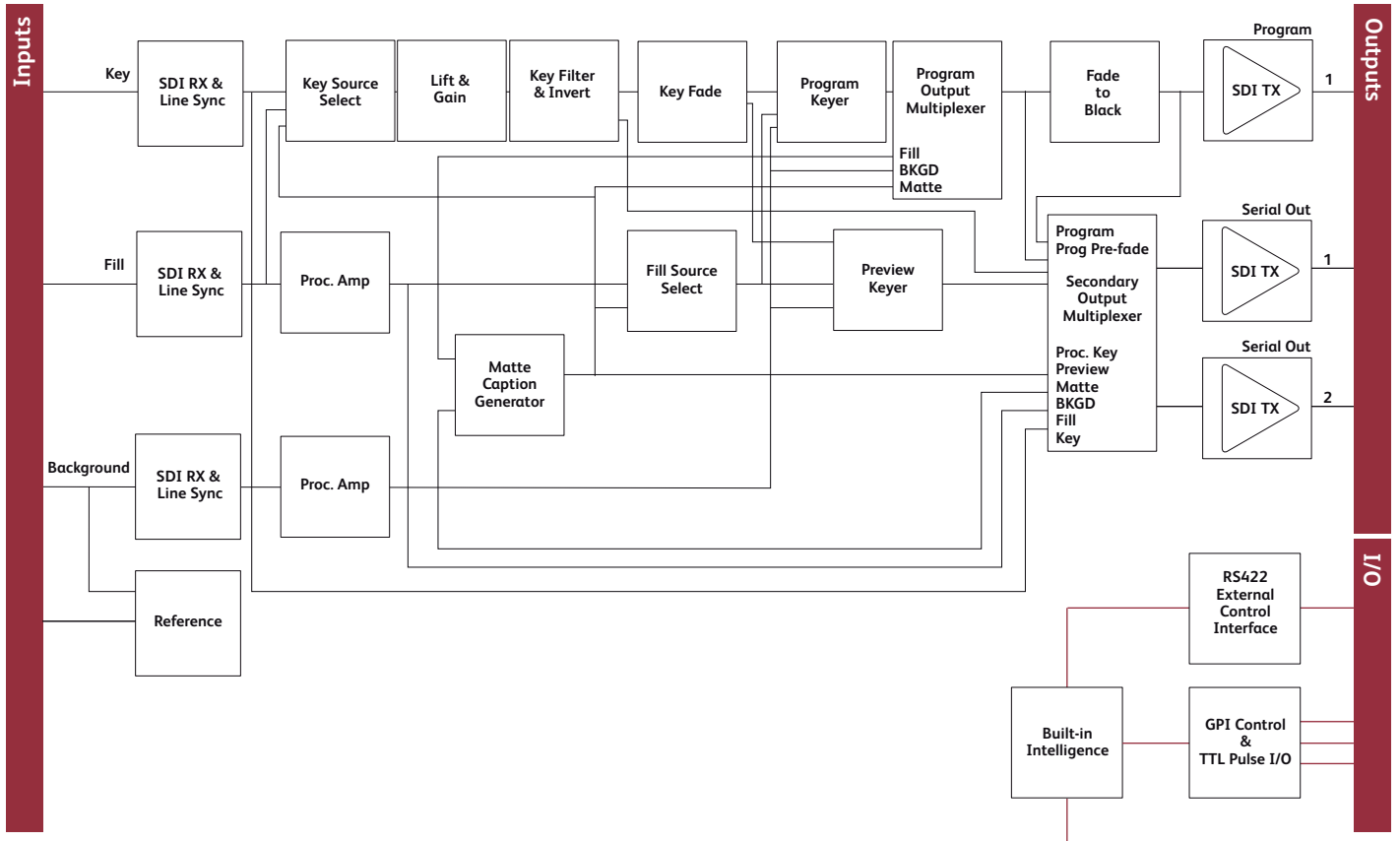


IQDSK0126-1A

IQDSK0146-2A



IQDSK0145-2A



Block Diagram for IQDSK0145-2A

## Technical Specification

### Inputs and Outputs

#### Signal Inputs

Serial digital background (bkgd)	1 x BNC Terminated in 75 Ohms
Serial digital key (key)	1 x BNC Terminated in 75 Ohms
Serial digital fill (fill)	1 x BNC Terminated in 75 Ohms
Standards	270 Mbit/s SDI, SMPTE 259M-C
Analog reference (ref)	1 x BNC Terminated in 75 Ohms
Standards	SD Bi-sync, RS170A

#### Signal Outputs

Serial digital (prog 1)	1 x SDI Program
Serial digital (preview 1, 2)	2 x SDI Preview (independently selectable)
Standards	270 Mbit/s SDI, SMPTE 259M-C

#### Control

GPI	2 closing contact style inputs + 1 I/O via BNC
RS422 remote control	9 pin D type connector

#### Controls

##### Controls

Bkgd / fill luma gain adjust	±6 dB in 0.1 dB steps
Bkgd / fill chroma gain adjust	±6 dB in 0.1 dB steps
Bkgd / fill black level adjust	±100 mV in 0.8 mV steps
Fill picture position	Approx. +600ns in 148ns (SD) or 27ns (HD) steps
Key picture position	Approx. +600ns in 74ns (SD) or 13.5ns (HD) steps
Key gain	0 – 13.686 (0x0000 - 0xFFFF)
Key lift	-10% - +110% (0x800 - 0x7ff) in 0.1% steps
Program fade to black	On / Off (selecting 'on' fades to black, off returns to program setting)
Program fade to black time	0 – 2047 Frames (0x0000 - 0x0800): 0-63 in steps of 1 frame 64 to 254 in steps of 10 frames >254 in steps of 100 frames (preset to 100)
Default program output Preview output 1 and 2 select	Fill, Matte, Color Bars, Black Independent selection for each output of: Preview, Program, Program prefade, Bkgd I/P, Fill I/P, Key I/P, Processed Key, Matte, Black, Color Bars
Genlock mode	Analog Reference / Background Input (Note: Fill and Key inputs can be up to 1 line earlier, but not later than the background input in this mode)
Reference default	On Ref. loss use background input. If background input not valid use fill input, otherwise free-run

Genlock H phase	±1H, adjustable in 13.5 ns steps for HD, or ±0.5H, in 37ns steps for SD
Ancillary data select	Background Input / Fill Input
Ancillary data blanking	Blank for HANC and/or VANC (Program output, Preview selection: Program, Program pre-fade, Background only)
Pattern generator	On/Off – EBU Color Bars (Preview Out Only)

#### Keyer Controls

Keyer control	RollCall/RS422
Keyer mode	Linear, Luma
Key source	Key Input / Matte / Fill Input (Self-Key)
Fill source	Fill Input / Matte
Key invert	Off / On
Keyer enable	Off / On (cut or fade on/off the keyer)
Fade enable	Off / On (fade function enabled when ON)
Keyer fade time	0 – 2047 Frames (0x0000 - 0x0800) 0-63 in steps of 1 field 64 to 255 in steps of 10 fields >255 in steps of 100 fields (preset to 100)
Mix enable	Off / On (dissolve or cut to the set mix level) Note: Keyer/Mix enable priority. Cannot both be selected at the same time. Selecting one of these functions will de-select the other if already enabled
Mix level	0 – 100% in 1% steps (100% = Full Key) (Preset to 50%)
Key opacity	Key fade level 50% to 100% (100% = Key full-on)
Memory GPI/O function*	16 x Store / Name / Recall GPI – Programmable to recall any memory (and toggle between 2 selectable memories)
GPO (output closed when true)	Key Tally On, Key Fade Up, Key Fade Down, Full Key (100% mix) enabled, Bkgd Lost, Fill Lost and Key Lost

\* Note: GPI's functional whether Keyer control selected to RollCall or RS422.

Preset unit	Returns all settings to factory defaults
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#### Matte Controls

Matte select	Single Color (default) / Frame Store
Frame store capture source	Background Input (default) / Fill Input
Frame capture	Activates capture from selected input
Frame store status	Captured = frame stored, Empty = not stored
Matte hue	0 – 360° (preset - 0°)
Matte saturation	0 - 100% (preset 0%)
Matte luminance	0 - 100% (preset 0%)



## Technical Specification cont...

### Indicators

Power	OK (Green)
CPU running	OK (Green flashing)
FPGA running	OK (Green flashing)
Status	OK (Green), Warning (Yellow), Error (Red)
Background input	OK (Green)
Key input	OK (Green)
Fill input	OK (Green)

### Additional Controls via RollCall Remote Control System

Logging	Input Status* Input Standard* Reference Status ANC Error (Bkgd, Fill) EDH Error*, Error-Time*, EDH Error-Seconds* CRC Error*, Error-Time*, CRC Error-Seconds* * Background, Key and Fill
RollTrack*	Set up to 8 unit destinations for Key On / Off / Fade / Mix, Background Input Loss / Restore and Key Loss / Restore * Note: RollTracks only operation when Keyer control set to RollCall

### Specifications

Input cable length	Up to 350 m Belden 1694A @ 270 Mbit/s
Input return loss	Better than -15 dB
Serial output level	800 mV ±10%
Output overshoot	<70 mV
Output return loss	Better than -15 dB
Output jitter	<0.2 UI
Minimum delay (when locked to background input)	5µs

### Reference Input

Electrical	Black and Black Burst SD bi-level – RS170A
Connector / format	BNC/75 ohm panel jack on standard Snell connector panel
Analog reference return loss	SD bi-level <-40 dB to 5.5 MHz

### Video Standards

525(480)/29i, 625(576)/25i  
Note: All inputs must be the same standard.

### EMC Performance Information

Environment	Commercial and light industrial E2
Peak mains inrush current following a 5 second mains interruption	No Mains Input
Performance information	No performance degradations or cable length limitations

### Power Consumption

Module power consumption	8.5W Max
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