



Annotator-CL-Base-SMA

Camera Link Annotation

The Annotator-CL-Base-SMA annotates Camera Link Base data streams with precision time stamps and other metadata. The annotation occurs directly in hardware with no software overhead, and works with existing hardware and software without complicated post processing.



Specifications

- Features**
- Annotate data with time stamp (± 25 microsecond) and 32-bit frame number
 - Digital annotation and text overlay can be used together or separately
 - Camera Link Repeater and Splitter
 - Programmable Camera Link signal breakout box
 - Functions standalone with user supplied software
 - Works with existing frame grabber with no software changes
 - RS232 control interface
 - Communicates pixels per line, lines per frame, frames per second, lines per second, and pixels per second to the host
 - Allows determination of image parameters for unknown cameras without a frame grabber
 - Anncle control software can run alongside end user software as a dedicated Annotator CL control panel

Data Interface	Camera Link Base (using MDR26 connectors)
Power Requirements	4.7-6 VDC, 1 A
Dimensions	6.3 x 4 x 2 inches
Operating Temperature	0° to 50° C
Part Number	Annotator-CL-Base-SMA-OEM <i>-OEM option for no enclosure</i>
Pricing	\$1175.00 each (contact us for OEM pricing)



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Additional Features

- Annotation data injected directly into the digital data stream:
 - IRIG-B referenced time stamp with flexible triggering options
 - 32-bit scan or frame counter
 - User defined ancillary, meta data, and status bits
 - Flexible digital and text overlay modes can be used together or separately
- Supports pixel rates up to 85 MHz with no restrictions on frame size or frame rate (using the DS90CR288AMTD receiver and the DS90CR287MTD transmitter)
- Inputs: Camera Link data stream, modulated IRIG-B time code, Remote Start
- Outputs: Master Camera Link annotated data, Slave Camera Link annotated data, Sync 1 (user selectable), Sync 2 (user selectable)
- Software toolkit and comm link documentation available for end user customization



Example showing both text overlay and digital annotation block



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Annotation Overview

- Multiple user defined annotation parameters can be accommodated in addition to the IRIG event time stamp and a 32-bit frame or scan number
- Annotation features work with both 16-bit and 24-bit frame grabbers
- Annotation speed and resolution matches the Camera Link data input
- Master and slave Camera Link outputs are perfectly synchronized to exactly the same output data stream
- Very flexible IRIG time code latching options:
 - Rising or falling edge of frame sync
 - Rising or falling edge of a selectable line sync
 - User defined event triggering options
- Digital Annotation and Text Overlay are each independently enabled or disabled

Digital Annotation

- 32-word encoded block inserted into data stream at user defined position (a block of 32 consecutive pixels on a row are replaced with the annotation data)
- Options for 8-bit or 16-bit annotation data (16-bit annotation can be in either high-low or low-high byte order)

Text Overlay

- Alphanumeric character generation at speed and resolution matching the Camera Link data input
- IRIG time and Frame Number are overlaid onto data stream at user defined position
- Text Background and Foreground colors can be independently set to any 24-bit value
- Text Background and Foreground can independently be set to one of four modes
 - In *Pixel Replacement* mode, the 24-bit Background or Foreground color replaces the original pixel value
 - In *Transparent* mode, the output pixel value is set to the original input pixel value; this can be useful for the Background to reduce the overlay area footprint
 - In *XOR* mode, the output pixel value is set to the original input pixel value XORed with the Background or Foreground color; with a color of 0xFFFFFFFF, this is useful to allow recovery of the original pixel values by repeating the XOR operation in processing software
 - In *OR* mode, the output pixel value is set to the original input pixel value ORed with the Background or Foreground color; this is useful for 10/12/14 bit cameras with a 16-bit frame grabber to allow recovery of the original pixel values by ANDing with the proper mask; for example, a 14-bit camera could use a color of 0xC000 in OR mode, then the original pixel values could be recovered by ANDing with 0x3FFF

Breakout Box Functions

- Provided on external SMA connectors *Sync 1* and *Sync 2*
- Independently selectable
- Can be set to Camera Link signals (DVal, FVal, LVal, CC1, CC2, CC3, CC4) or a custom user defined parameter or function



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Camera Link Annotation

Flexible Remote Start Capture Trigger

- Capture Trigger can be inserted as an annotation bit or used to turn Camera Link outputs on and off
- Capture Trigger is synchronized with Camera Link FVAL signal
- Capture Trigger can be set to trip on a user defined input

16-bit Mode Digital Annotation Block

Word	Definition
1	Year*
2	Day of Year (BCD)
3, 4	Second of Day
5, 6	Microseconds
7, 8	Frame Number
9–28	0
29, 30	Text Overlay Background
31, 32	Text Overlay Foreground

*Bit 15 of Year is the CaptureTrigger bit; bit 14 of Year is the Locked bit

8-bit Mode Digital Annotation Block

Word	Definition
1, 2	Year*
3, 4	Day of Year (BCD)
5, 6, 7, 8	Second of Day
9, 10, 11, 12	Microseconds
13, 14, 15, 16	Frame Number
17, 18, 19, 20	Text Overlay Background
21, 22, 23, 24	Text Overlay Foreground
25, 26, 27, 28, 29, 30	0
31, 32	Checksum

*Bit 15 of Year is the CaptureTrigger bit; bit 14 of Year is the Locked bit