

HD-SDI extender



General Description

HD-SDI extender increases transmission length of HD-SDI signaling using 1-Channel optical cable. Electrical-to-optical and optical-to-electrical conversion technology enables transmission length extending without any bulky cable and repeater. Transmission length is up to 2km for HD-SDI.

Features

- Reliable 850nm VCSEL and GaAs PIN PD technology.
- Transmission length: up to 2km using 50µm OM3 multimode fiber at HD-SDI Signal
- Supports video pathological pattern transmission.
- Supported data rate: HD-SDI(SMPTE-292M) and SD-SDI(SMPTE-259M) transmission is also available by option.
- BNC connector for electrical in-out.
- ST connector for optical in-out.
- Power supply : DC 5V only (USB)
DC 12V&AC24V
DC 12V only

Applications

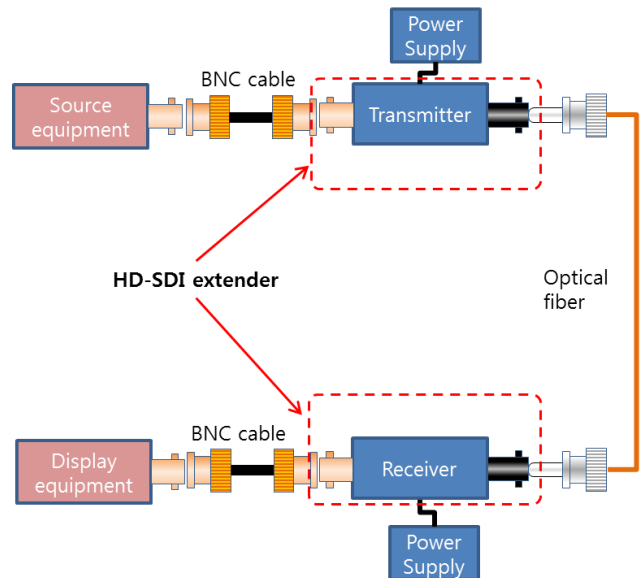
- Broadcast video applications
- Digital Video Records (DVR)
- Surveillance / CCTV cameras
- Digital video displays

Ordering Information

Type	Power	Model number
HD SDI set	DC 5V only	USM-HDFB
HD SDI set	DC12V&AC24V	USM-HDFC
HD SDI set	DC 12V only	USM-HDFD

Block Diagram

Connection example



Characteristics

ABSOLUTE MAXIMUM RATINGS

parameters	Symbol	Min	Max	Unit	
Storage temperature	T_{sto}	-30	+80	°C	
Supply voltage	@ DC 5V type	V_{CC_DC}	-0.5	6	V
	@ DC 12V	V_{CC_DC}	-43	43	V
	&AC24V type	V_{CC_AC}	0	30	V
Operating temperature range	T_{op}	-20*	+70	°C	

* -20~70 °C temperature range is 1.5Km Transmission length. 2Km Transmission length operate 0~70°C

RECOMMENDED OPERATING CONDITIONS

parameters	Symbol	Min	Typ	Max	Unit	
Supply voltage	@ DC 5V type	V_{CC_DC}	4.5	5	5.5	V
	@ DC 12V	V_{CC_DC}	10	12	40	V
	&AC24V type	V_{CC_AC}	20	24	28	V

TRANSMITTER ELECTRICAL AND OPTICAL CHARACTERISTICS

parameters	Symbol	Min	Typ	Max	Unit
Input signal	SMPTE 292M/259M				
Supply current of USM-HDFC @ DC12V input	I_{CCt}	80	88	97	mA
Single-ended voltage swing	V_{IN}	700	800	1,200	mV _{P-P}
Single-ended input impedance	R_{IN}		75		Ohm
Average optical output power	P_O	-8	-5	-4	dBm
Optical output extinction ratio	ER		5		dB
Optical rise/fall time	t_{riseT}/t_{fallT}		200		ps
Optical output wavelength	λ_{OUT}	830	850	860	nm

RECEIVER ELECTRICAL AND OPTICAL CHARACTERISTICS

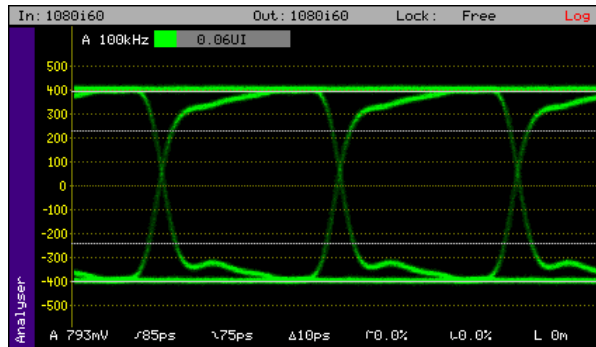
parameters	Symbol	Min	Typ	Max	Unit
Output signal	SMPTE 292M/259M				
Supply current of USM-HDFC @ DC12V input	I_{CCR}	62	69	76	mA
Single-ended voltage swing	V_{OUT}	740	800	860	mV _{P-P}
Data output rise/fall time	t_{riseR}/t_{fallR}		200		ps
Total jitter	TR_{jitter}		0.1	0.2	UI
Single-ended output impedance	R_{OUT}		75		Ohm
Receiving optical power	P_{in}	-12		0	dBm

RECOMMENDED SPECIFICATIONS OF FIBER-OPTIC CABLES

parameters	Conditions	Specifications
Fiber type	Glass Multi-mode Fiber	50/125 μ m OM3
Effective modal bandwidth	$\lambda=850$ nm	2000MHz·km
Fiber cable attenuation	$\lambda=850$ nm	<2.5dB/km
No. of cable	ST/PC connector	Single Link

TYPICAL ELECTRICAL EYE DIAGRAM OF THE RECEIVER OUTPUT

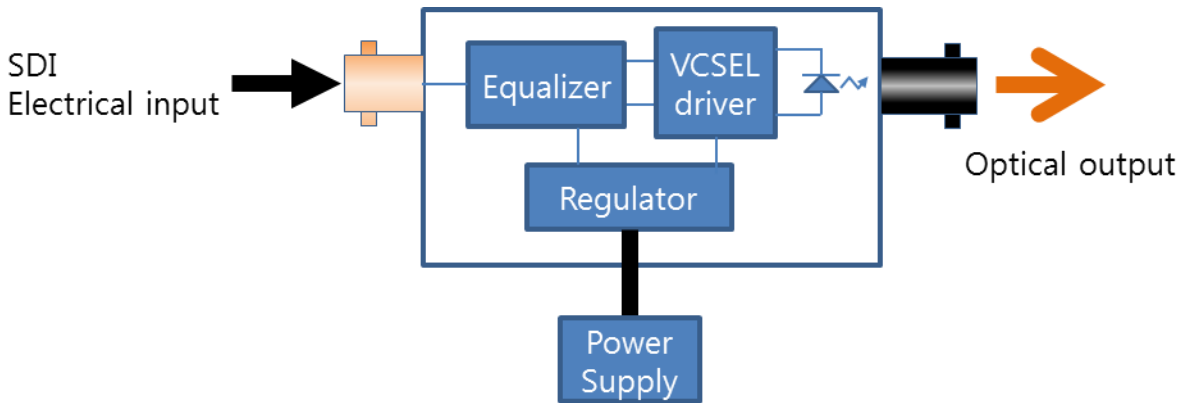
HD-SDI electrical output



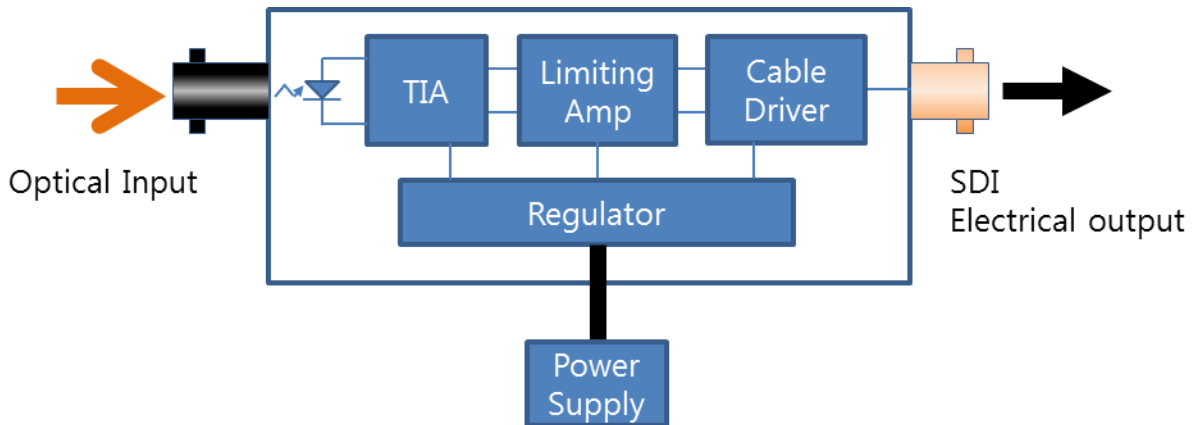
Input data pattern: pathological pattern

Functional Block Diagram

Transmitter



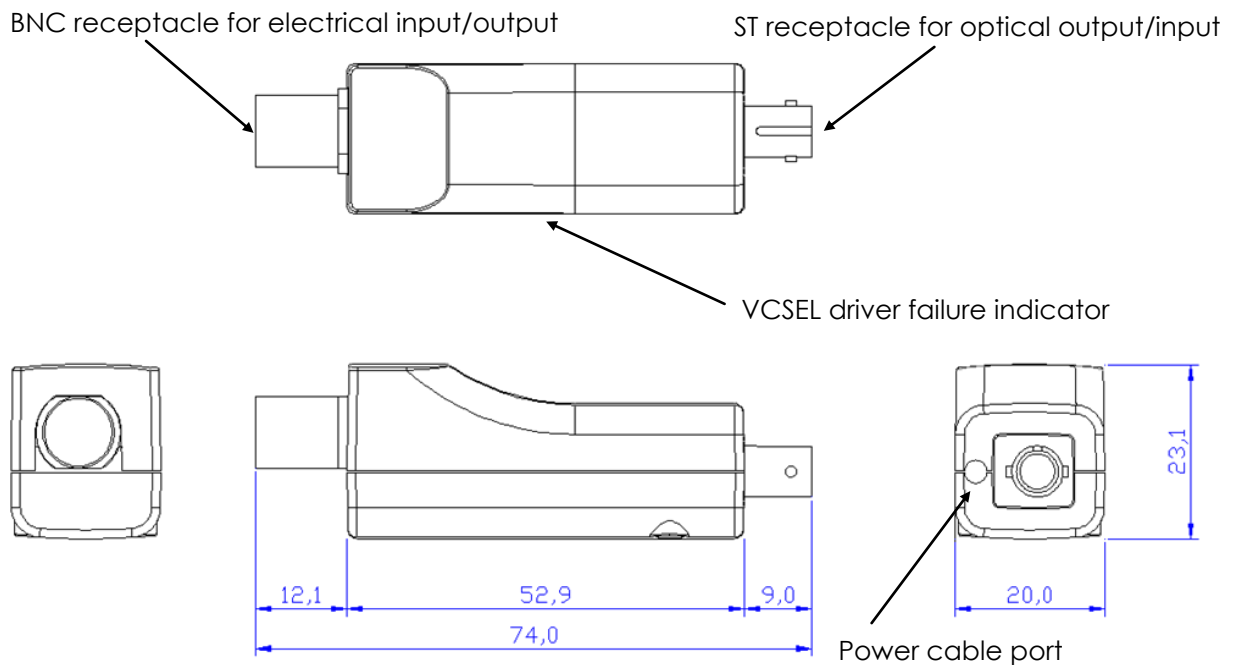
Receiver



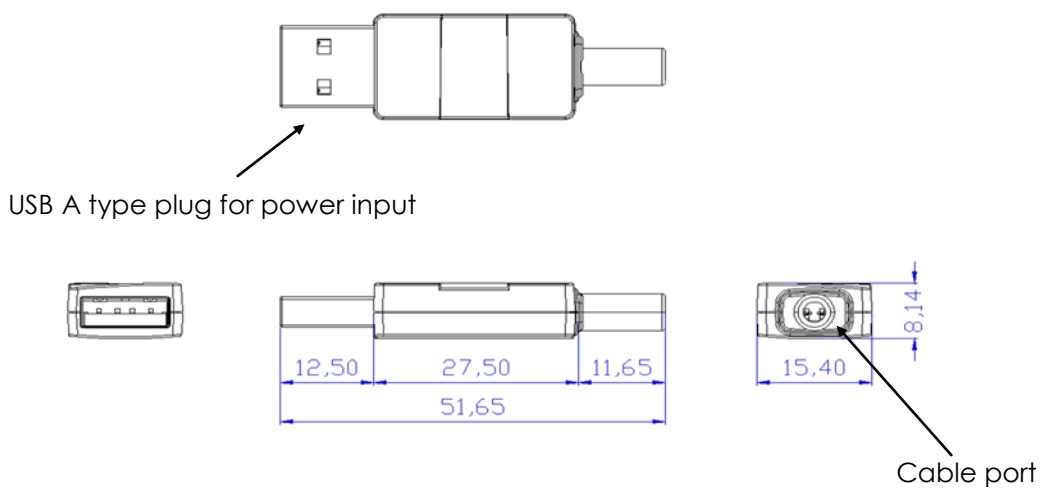
Outline drawing

Dimensions in mm

Main Module



5V DC Power



DC 12V & AC 24V Power or DC 12V only Power

