

STORA: RUGGED TRANSMISSION OVER OPTICAL FIBER



The **STORA** is a very rugged optical fiber transmission intended to connect 2 outdoor cameras to the OB VAN. Its capacity allows two standard cameras or one 3D camera per system. The equipment assumes transmission of a comprehensive set of signals as follows:

- 2 HD signals (live image),
- 2 HD return path signals (view finder),
- 1 Genlock (PAL image / Black burst / Tri-level),
- 8 analog audio for intercom or broadcasting,
- 1 Ethernet 10/100Mbps,
- 2 Data RS 232/422/485,
- 2 Contact closure.

The transmission board and its power supply are integrated in a compact die cast aluminum box. The enclosure ensures excellent shock/drop protection along with dust and water resistant capacity. A small internal fan guarantees convection cooling inside of the box with the aluminum walls acting as a heat sink.

All the signals are transmitted on 2 singlemode fibers. Camera side module ; STORA RX can be remote powered through Hybrid cable.

Connectors / Status leds:

Standard rugged connectors are used for all the signals. HD and PAL video ports are on BNC connectors. The other connectors are Neutrik D series socket, 4 audio are routed to XLR and the 4 remaining are located on D SUB 25 socket expansion connector for space consideration. IP, RSxxx and contact closure are dispatched on RJ45.

Optical and remote power access is done through a Neutrik OpticalCon DUO socket.

Seven status Led are located on the connector face (details in specification description).

Powering the STORA:

	STORA TX	STORA RX
Location	OB VAN	CAMERA SIDE
Main	110 V – 220 VAC	110 V – 220 VAC
Low voltage	8 to 16 VDC	8 to 16 VDC
Remote power through SMPTE cable	Power source for camera side (110V – 220V required to remote power)	Remote powered

STORA: TECHNICAL SPECIFICATIONS

Optical	
Dynamic range:	15 dB (~ 30Km)
Optical link n°1:	HD SDI bidirectional
Optical link n°2:	HD SDI bidirectional + all other signals (GPIO, IP, RS, AUDIO)
Connector:	NEUTRIK OpticalCon DUO
Video SD/HD	
Number, connector:	1 bidirectional channel on BNC
Impedance:	75 Ω
Standard:	SDI, ASI, HD, 2HD (3G optional, specific optical component)
Amplitude:	Input: cable equalization (140 m Belden 1694A for HD), Output: 800mV pp
Return loss:	Better than - 15 dB
Analog Video / GL	
Number, connector:	1, BNC
Standard:	PAL, SECAM, NTSC, Tri-level (Bi / Tri level auto sense)
Impedance:	75 Ω
Bandwidth:	> 5.8 MHz at +/- 0.2dB
Differential Gain:	< 1%
Differential Phase:	< 1°
Group delay:	< 10 ns
SNR:	> 67 dB (CCIR567)
Analog Audio	
Number, connector:	8 bidirectional channels, 4 on XLR / 4 on one SUB D 25 socket
Impedance:	Input: 10 KΩ differential (non floating), Output: 20 Ω differential (non floating)
Amplitude:	+4 dBm nominal (saturation at + 18 dBm)
Bandwidth:	50 Hz to 15 KHz at +/- 0.5dB, (20Hz to 20 KHz at -3dB)
Distortion:	0.05% at 1KHz +18 dBm
Signal to noise ratio:	90dB, "A" weighted
Data	
Number, connector:	2 bidirectional channels, 1 RJ 45 socket per channel
Protocols:	RS485, RS422, RS232
Data rate:	0 à 230 Kbd/s
Setting:	Internal coding wheel, (RS 485 2 wires by strapping on SUB-D) / RS 485 setting common for the 2 channels
Ethernet	
Number, connector:	1 channel, RJ45 Socket
Protocols:	10 or 100mb/s, Full or Half-duplex (Auto), MDI or MDI-X (Auto)
GPIO	
Number, connector:	2 bidirectional GPIO contacts / 1 GPIO along each DATA RJ45 connector
Output:	Relay (dry contact). 'Common' – 'Normally Open' terminals for each relay
Input:	Input pin grounding
Powering	
Consumption:	10 Watts per side
Low voltage source:	8 to 16 V DC, XLR 4 pins connector, protected by 5*20 mm standard internal fuse
Mains source:	From 90 to 260 VAC / 47 to 63 Hz
Hybrid cable source:	From 24 to 48 volts on powered device input / allowing 1000m of AWG16 cable.
Mechanical	
Case:	Die cast strong aluminum case, size 335*235*111mm excluding connectors and handles
Cooling:	Internal fan / Case walls acting as Heat sink (No dust entry guarantee)
Operating Temp range:	From -20 to + 60°C. (Avoiding direct sun exposition)
Signaling	
HD Video:	1 LED for each link (HD receiver locked on signal)
Analog video:	1 LED for video presence on the Input / Output port
Data activity:	1 LED blinks in case of activity on the DATA links
Alarm:	1 LED lits if internal receiver is not locked on incoming signal or in any internal problem
Power:	1 LED lits if all internal power sources are within specifications
Remote power:	1 LED indicates the remote power status (TX is sourcing power / RX receiving enough power)