

## 12G-SDI Dockable optical fiber transmission unit for HD / 3G / 4K / 8K Cameras.



The CAM RACER is a complete optical fiber transmission solution for OB Van, Studio and Cinema applications. It is composed of a camera dockable transmitter and a 1RU basestation receiver.



### Product Highlights

With two 12G-SDI channels plus two 3G-SDI channels the CAM Racer will fit any camera from ENG to 4K and 8K Cinema devices.

CAM Racer can deliver up to 140 Watts of power to the camera at 450 meters of standard 9.2mm SMPTE cable.

An automatic battery backup provides additional power in case of sudden increase in demand.

Signals control and setup is accessible through internal web server. Signals status are also visible on LED for each unit. An Oled display gives direct access to optical receiving levels and server IP address.

An internal audio mixer allows the user to mix between talkback, programs inputs and local audio channels for Eng and Reporter headsets.

Camera control channel supports: Ethernet, RS422 Serial, Canon RC-V100 protocol (Enhanced LANC).

Camera synchronization supports: Two Composite Video signals and one Timecode.

## Detailed Description

The transmitter is fitted in a V mount dockable unit able to be installed on every camera. Red/green tally led are located on top of the unit. A user panel features LEDs for signal presence/activity, rotary button for volume adjustment and various level settings (sidetone, program1 / program2 listen level) and push to talk commands. Cooling of the unit is performed by a small and silent fan located at the back of the unit.



The basestation receiver is integrated in a standard 19" 1RU format. All signals are dispatched on standard connectors and standard pinout at the rear of the chassis. (The web server is on a separate Ethernet port). The front of the chassis is composed of a LED display panel indicating the status of each signals and technical alarms. An Oled display gives direct access to optical receiving levels and server IP address. The basestation integrates a single mains power supply and two fans for thermal management.

Each CAM Racer comes in standard with the following signal set:

- 2\*3G / HD / SD signals from Camera (1\*3G/HD/SD for the Lite version)
- 1 Viewfinder HDSI from basestation,
- 1 Monitoring HDSI from the camera (HDMI or BNC input autoswitch),
- 2 Genlock from basestation (Composite video / Black burst / Tri-level),
- 2 Bidirectional audio with mic preamp and phantom power at camera side,
- 1 Talkback in/out with headset interface at camera side,
- 1 Time code from basestation,
- 1 Ethernet 10/100 Mbps,
- 1 Serial data RS 232/422/485,
- 1 Canon RC-V100 protocol (Enhanced LANC),
- 1 Red Tally Contact closure from basestation.

Two options are available for more complex setups (4K/8K, 2 talkback channels):

- 2 extra 12G / 6G / 3G / HD / SD signals from Camera (board add-on, not available in lite),
- 2<sup>nd</sup> Talkback in/out with headset interface at camera side + 2<sup>nd</sup> Tally (Green) Contact closure from basestation + 2<sup>nd</sup> Serial data RS 232/422/485 (connector add-on).
- V-lock mount or Anton Bauer

The camera unit provides talkback headset interfaces suitable to all types of mic (dynamic, electret, fully static) and any earpiece impedance. An internal audio console enables talkback, local audio channels inputs, and program inputs to be mixed on every Camera unit audio output.

### Basestation & Camera unit connector view:



## Camera Power Section

CAM Racer can be remote powered from its basestation. The camera unit is able to source up to 140W of power for the camera at 450m of 9.2mm SMPTE cable.

An optional V-lock or Anton Bauer battery support enables the CAM racer and its camera to be locally powered by a battery.

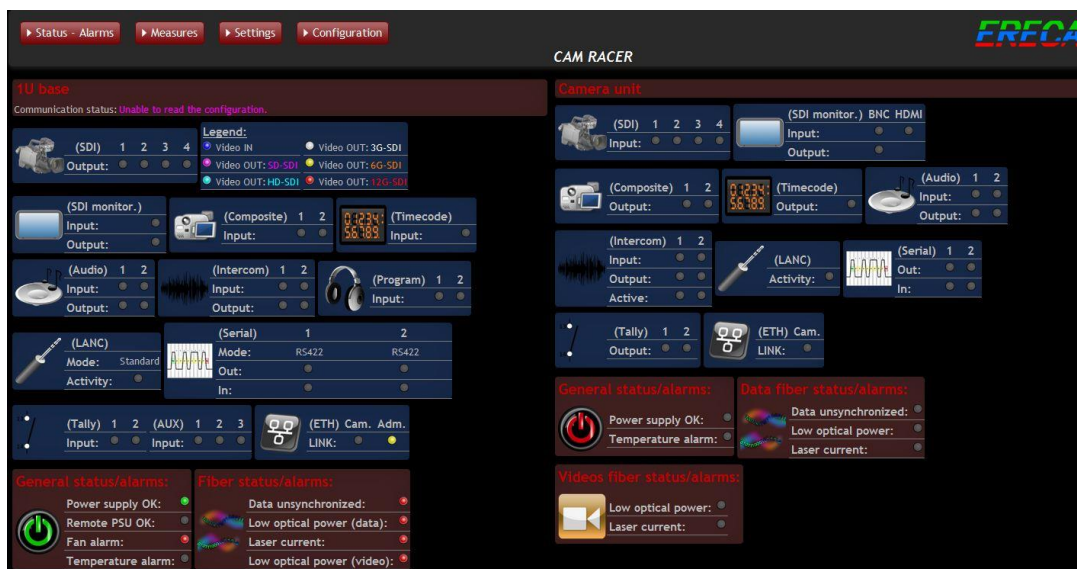
A key feature of the Cam racer is the automatic switching between remote power and battery power without power loss to the CAM Racer and its camera. On very long lengths of SMPTE, a temporary sudden extra consumption are frequent (camera startup, accessory startup) and may draw too much power. However, in this case the CAM Racer will detect the power drop, will switch on the battery, and come back on the remote power supply when the extra demands drops, in order to save battery energy.

CAM Racer is also designed for low power consumption devices like Canon C300/C500. In this case the remote power section is not required. The V-lock battery option powers the Cam Racer and includes an internal high efficiency voltage regulator to deliver 8.4V / 32W for the Canon Camera from a dedicated D-Tap connector.

## Web Management

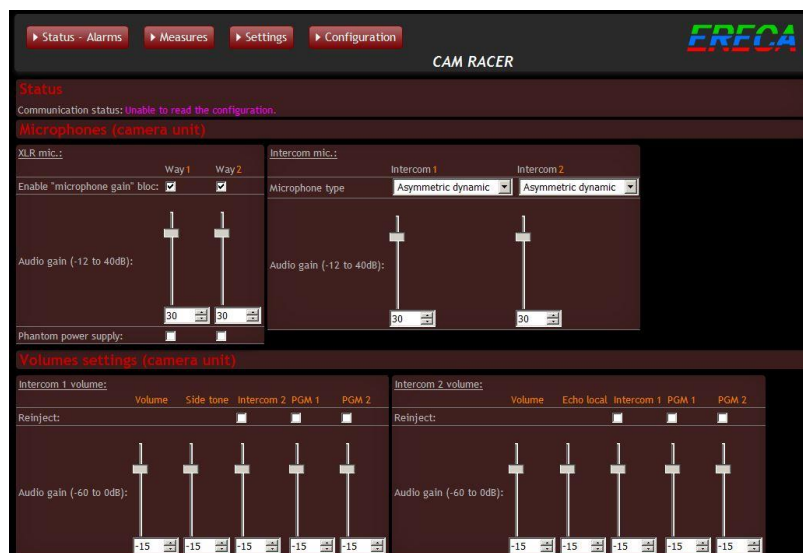
The web management of the units are done via two main pages

The *Status* page displays all signals presence / activity for quick control of the system.



The *Settings* page allows to control:

- Audio input type,
- Headsets type,
- Talkback mixing,
- Audio mixing,
- Camera control,
- Tally settings,
- Setup save/recall.



## Technical Specifications

<b>Optical</b>	
Dynamic range:	15 dB for control and 3G signals, 10dB for 12G channels.
Connector:	LEMO 3K (EDW / FXW) or NEUTRIK OpticalCon DUO.
<b>SDI Video SD to 12G</b>	
Connector:	3G certified BNC and 12G certified BNC.
Impedance:	75 Ω.
Standard:	SDI, ASI, HD, 3G on basic model. SDI, HD, 3G, 6G, 12G with optional 12G channels board.
Amplitude:	Input: cable equalization on all channels including 12G, Output: 800 mV pp / re-clocked.
Return loss:	Better than: - 15 dB for 0 to 1.5 Ghz, - 10 dB for 1,5G to 3G, -6dB for 3G to 12G.
<b>Composite Video / GL</b>	
Number, connector:	2 from basestation to camera, 2 BNC
Standard:	Composite video, Black Burst, Tri-level (Bi / Tri level auto sense).
Impedance:	75 Ω.
Performance:	BW > 5.8 MHz at +/- 0.2 dB, DgDp < 1%, < 1°, Group delay < 10 ns, SNR > 67 dB (CCIR567).
<b>Analog Audio</b>	
Number, connector:	2 bidirectional channels, XLR 5pins on camera unit, XLR 3pins on basestation.
Impedance:	Input: 10 KΩ differential (non-floating), Output: 20 Ω differential (non-floating).
Amplitude:	+ 18 dBm maximum.
Bandwidth:	50 Hz to 15 KHz at +/- 0.5dB, (20 Hz to 20 KHz at -3 dB).
Distortion:	0.05% at 1KHz / 0 dBm.
Signal to noise ratio:	90dB, "A" weighted.
<b>Mic input</b>	
Input:	Microphone input gain block on the camera unit.
Mic input, Gain:	From -12 to 40 dB, Tunable by 1 dB steps, Totally by-passable.
Phantom power:	48 volts switchable, Source Impedance 6.8 KΩ.
<b>Timecode</b>	
Number, connector	1 from basestation to camera unit , BNC.
Impedance, Connector:	75 Ω, BNC.
<b>LANC</b>	
Number, connector	1 bidirectional, Jack2.5mm.
Protocol	Standard LANC or RC-V100 remote protocol (5V open collector signaling).
<b>Data</b>	
Number, connector:	2 bidirectional channel, RJ 45 for Channel 1, Hirose 12 for channel 2.
Protocols:	RS485, RS422, RS232.
Data rate:	0 to 500 Kbd/s.
<b>Ethernet</b>	
Number, connector:	1 channel, RJ 45.
Protocols:	10 or 100 Mb/s, Full or Half-duplex (Auto sense), MDI or MDI-X (Auto sense).
<b>Intercom / Tally</b>	
Number:	2 Tally, 2 Intercom.
Tally output:	Relay (dry contact) shared with serial RJ45 (red) and Hirose 12 (green). Red/Green LED.
Tally input:	Contact or Voltage input. Shared on intercom D-SUB 25 pins with standard CCU pinout.
Camera Intercom I/O	Any type of Headset Mic (Dynamic, Electret; Static) and Earpiece impedance (20 to 600 Ohms).
Base st. Intercom I/O	Line levels for Intercom and program input.
Talk command	Pushbutton on cam unit, PTT input on RJ45 for pocket PTT switch. (Talk latch release on basestation).
Connector	XLR 5 pins (intcom1), Hirose 12 pin (intcom2), Standard D-SUB 25 pins on base (Tally, Intcom, Pgm).
<b>Power section</b>	
Camera unit:	7 Watts for 2x3G basic device + Additional 3W for dual 12G channel option.
Camera power capacity (Standard 9.2mm SMPTE)	14.4V, 140W continuous, temporary unlimited with automatic battery backup. Decreasing for length over 450m, 100W remaining at 600m.
Regulator option	8.4Volts 4Amps output for Canon devices on dedicated D-TAP.
Battery plates	V-Lock or Anton Bauer (under development).
Basestation unit:	10 VA for the basestation (Additionally up to 200VA for remote power source).
Mains source base:	From 90 to 260 VAC / 47 to 63 Hz.
<b>Mechanical</b>	
Camera unit:	155 * 145 * 44mm excluding connectors & plates (Add 13mm for power converter), weight 1400 grams.
Basestation:	1 RU 19" rack, depth 250mm excluding connectors, weight 3kg.
Operating Temp range:	From -20 to + 60°C. (Avoiding direct sun exposition). Cases are built in Aluminum and Stainless steel.

ERECA reserve the right to change specifications without notice.