



Description

The greenMachine titan is a powerful general purpose audio and video processing appliance that can perform many different functions. The platform can either be used as a single 12G-SDI processing platform or an up to 4x 3G-SDI processing platform, using one of several available greenMachine configurations (constellations). Input for 4k/UHD can be either 4x 3G SDI (2SI Quad Link) or 12G SDI (Single Link).

These constellations are a perpetually owned software licences for deployment on the platform at will. So a single machine can have multiple licenses to switch to if necessary. These constellations include extensive Up-/Down-/Cross converters (UPXD), Dynamic Segmented HDR to SDR Down Conversion (HDR Evie+), Test Pattern generator with multi Channel AV Delay Measurement & Correction (Testor AV) and more.

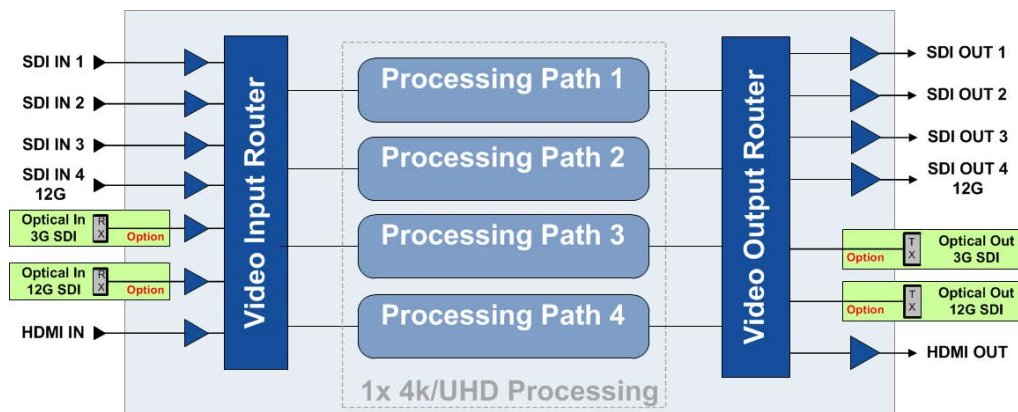
Constellations can also be deployed via LynxCentraal if they are not owned to test in a live system (watermarks will be applied to outputs).

Conversion between Single Link 12G SDI and 2SI Quad link signals (and vice versa) is included. Fibre SFP options are available for one SD/HO/3G-SDI and one 12G-SDI input and output.

Features

- 4x 3G or 1x 4K/UHD general purpose AV processing appliance
- Internal input and output signal routers
- Integrated control panel with color display for live image monitoring, audio level meters, status indication and menu driven control interface
- Small footprint: 1RU high x half 19" rack width
- 3x Electrical SD/HO/3G-SDI inputs (Level A and Level B DL)
- 3x Electrical SD/HO/3G-SDI outputs (Level A and Level B DL)
- 1x Electrical SD/HO/3G/12G-SDI Input
12G Single Link / Quad Link 2SI Level A/B DL
- 1x electrical SD/HO/3G/12G SDI Output
12G-SDI Single Link / Quad Link 2SI Level A/B DL
- 1x 4K/UHD HDMI input (1.4b) and 1x 4k/UHD HDMI output (1.4b):
4K/UHD 50/59.94/60Hz signals will be displayed in 4:2:0 color subsampling
- 1x Analog reference input and output (bi-level or tri-level sync)
- 1x Electrical LAN I/O connection
- 4x Balanced analog audio or digital AES Audio inputs
- 4x Balanced analog audio or digital AES Audio outputs
- 4x GPI inputs and 4x GPI outputs
- Optional MADI input/output on 3G SDI fiber interface*
- Optional SDI fiber I/O (basic fiber or CWDM): SD/HO/3G
- Optional 12G SDI fiber I/O (basic fiber or CWDM): HD up to 12G
- Optional Ethernet LAN fiber connection (basic or CWDM)
- Optional redundant power protection
- Optional 19" rack frame
- Full remote control using NOVA control and LynxCentraal
- Full SNMP V2 support

Functional Diagram



GM6840_Titan_Rev2.9 Specifications subject to change



Hardware Specifications

| | |
|-------------------------------|--|
| 12G-SDI Output | 1x 12G-SDI on 75 Ohm BNC connector (SMPTE 292M, 424M, 259M, 2082) Return Loss: same as 3G SDI; >7dB to 6GHz; >4dB to 12GHz |
| SDI Outputs | 3x SDI video on 75 Ohm BNC connector (SMPTE, 292M, 424M, 259M) Timing jitter: <0.2 UI @ 270Mbit/s, <1.0 UI @ 1.5Gbit/s, <2.0 UI @ 2.97Gbit/s Alignment jitter: <0.2 UI @ 270Mbit/s, <0.2 UI @ 1.5Gbit/s, <0.3 UI @ 2.97Gbit/s Return Loss: >15dB from 5MHz to 1.5GHz, >10dB from 1.5GHz to 3GHz |
| 12G-SDI Input | 1x 12G SDI video on 75 Ohm BNC connector SMPTE 292M, 424M, 259M, 2082 with automatic video format and standard detection Return Loss: same as 3G SDI; >7dB to 6GHz; >4dB to 12GHz |
| SDI Input | 3x 3G SDI video on 75 Ohm BNC connector - SMPTE, 292M, 424M, 259M with automatic video format and standard detection Return Loss: >15dB from 5MHz to 1.5GHz, >10dB from 1.5GHz to 3GHz Automatic cable EQ (Belden 1694A): 340m@270Mbit/s, 150m@1.5Gbit/s, 110m@2.97Gbit/s |
| HDMI Input / Output | 1x HDMI Input for up to 4K/UHD (Female HDMI 1.4b conn., 10bit) 1x HDMI Output for up to 4K/UHD (Female HDMI 1.4b conn., 10bit) |
| Optical I/O (Optional) | 1x 3G-SDI SFP Transceiver (SMPTE 297M - 2006) 1x 12G-SDI SFP Transceiver (SMPTE 292M, 424M, 2082) - no SD SDI |
| Ethernet (LAN) | 1x 10/100/1000 BaseT RJ45 Connector |

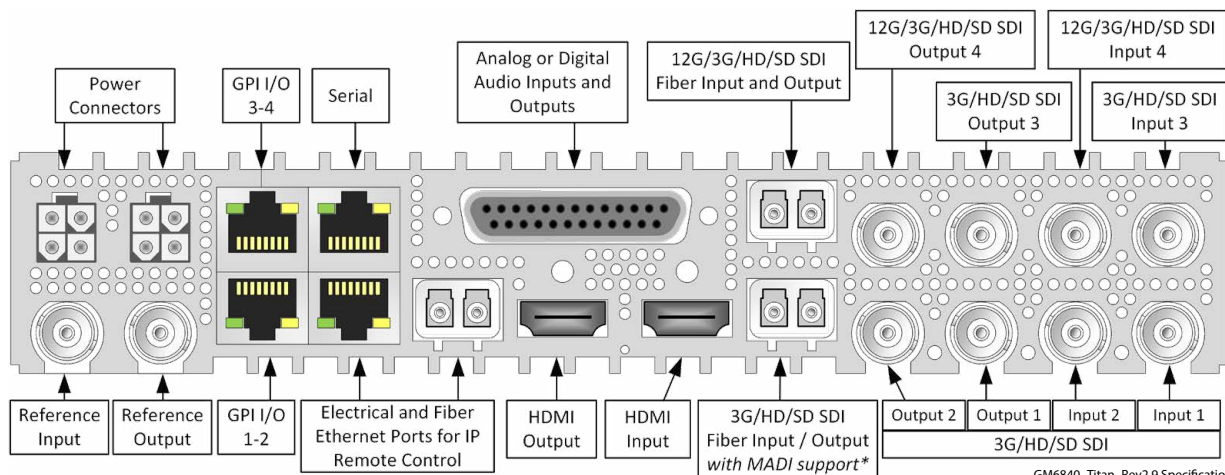
| | |
|------------------------------------|---|
| Optical Ethernet (Optional) | IEEE 802.3z 1000Base-X Gbit/s Ethernet over Fiber at 1 Gbit/s (125 MB/s) |
| GPI I/O | 4x general purpose inputs - RJ45 Connectors 4x general purpose outputs - RJ45 Connectors |
| Reference Input | 1x analog video reference on 75 Ohm BNC connector Analog bi-level (SDTV) or tri-level (HDTV) auto detect |
| Reference Output | 1x analog video reference throughput (75 Ohm BNC connector) Analog bi-level (SDTV) or ri-level (HDTV), cross lock capability |
| Serial Data | EIA/ETA RS232C / RS422 / RS 485 (selectable through LynxCentraal) RJ45 connector ESD protection for up to 16kV |
| Audio I/O | 4x input and 4x output on Sub-D 25 female connector (SubD 25 breakout board with screw terminals is included) Analog: input impedance >10k Ohm, Output Impedance 150 Ohm Analog I/O full scale level: selectable 12, 15, 18, 20, 22, 24 dBu Digital: AES3 balanced transformer isolated; Digital output level: 4V peak to peak nom 64 channel MADi supported on selected constellations (via 3G-SDI) |
| Power | 12VDC @ 45W nominal (supports 7 - 24VDC input range) 2x power connections for redundant power supply |
| Mechanical | W: 218mm (1/2 19"), H: 44mm (1.75"), D: 225mm (8.86") - incl. connectors Weight: 1.4kg (3.09lb) |
| Ambient | Temperature: 5°C to 40°C (41°F to 104°F) maintaining specification Humidity: 90% maximum, non-condensing |

Supported SDI Formats

| | | | |
|-------------------------------------|---|---|---|
| SDTV Formats | 525 / 59.94Hz 625 / 50Hz | | |
| HDTV Formats | 1080i / 50Hz 1080i / 59.94Hz 1080i / 60Hz 1080p / 23.98Hz 1080p / 24Hz 1080p / 25Hz 1080p / 29.97Hz | 1080p / 30Hz 1080psf / 23.98Hz 1080psf / 24Hz 1080psf / 25Hz 720p / 23.98Hz 720p / 24Hz 720p / 25Hz | 720p / 29.97Hz 720p / 30Hz 720p / 50Hz 720p / 59.94Hz 720p / 60Hz |
| 3G-SDI Formats Level A and B | 1080p / 50Hz 1080p / 59.94Hz 1080p / 60Hz | | |

| | |
|--|--|
| 12G-SDI Formats Single Link | 3840 x 2160p / 50Hz 3840 x 2160p / 59.94Hz 3840 x 2160p / 60Hz |
| 12G-SDI Formats Quad Link 2SI Level A and B (4 x 3Gbit/s) | 3840 x 2160p / 50Hz 3840 x 2160p / 59.94Hz 3840 x 2160p / 60Hz |

Backplane View



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Options

RFR 6000 - 1RU 19" Rack Mount Chassis

Rack mounting hardware which can accommodate one or two greenMachines in 1RU of rack space which also securely mounts the power supplies.



One greenMachine in Rack Mount

Note: Two power supplies can be mounted into one RFR 6000. For more information please refer to the RFR 6000 quick reference guide.

RXT 6001 19" Rack Extension for RFR 6000

The greenMachine is ideally suited for standalone applications but this powerful processing platform reaches its full potential when used within a system design.



RXT 6001 installed in RFR 6000

The RXT 6001 is a compact and flexible rack extension for RFR 6000. It can be setup to hold up to four RPS A100 power supplies.

RPS A100 - AC to DC Power Supply 12V/8A

The RPS A100 AC to DC Desktop power supply unit provides 100 watts of continuous output power. The power supply is equipped with IEC320-C14 AC inlet.



Plugs are available for regions EU, US and UK as well as an option without a power plug (N).

ABS Case for greenMachine

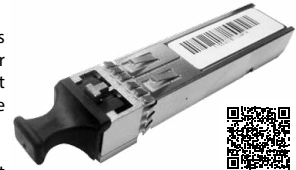
The transport case is perfect to keep your greenMachine, cables and documents organized and in one place, while also protecting it from environmental influences. With its sturdy design, our ABS Case is the ideal partner to transport your greenMachine whenever it is not wired in a rack, standalone or any other system you can think of.



The hard shell case protects your greenMachine from most impacts in an average, busy work environment, while the inner foam coating prevents it from being scratched by cables, connectors or other equipment that can also be stored inside the case.

Fiber Options

The GM 6840 is equipped with three SFP sockets which can accommodate a variety of plug in SFP fiber I/O options. We recommend specific SFPs for different constellations. Please refer to the datasheets for more information.



Recommendations below are for optional ethernet communication via fiber.

| Basic Ethernet Fiber Transceiver | | Power | Sensitivity |
|--|--|-------|-------------|
| OH-TR-51-LC | Ethernet Fiber Transceiver, Singlemode - 10km* - LC - 1310nm | -3dBm | -21dBm |
| CWDM Ethernet Fiber Transceiver | | | |
| OH-TR-54-XXXX-LC XXXX = Wavelength | Ethernet Fiber Transceiver, Singlemode - CWDM capable - 40km* - LC | 0dBm | -21dBm |

* Distance is an approximation. Actual distances achieved can be longer or shorter depending on the type of fiber cable and accumulated optical losses in the fiber link. Determine link losses and perform optical budget calculations to ensure correct operation.

Ordering Information

| greenMachine titan Hardware | | EAN |
|--|--|------------------|
| GM 6840 EU/UK/US | greenMachine titan | EU 4250479328501 |
| | GM6840 Processing Platform, RPS A100 Power Supply, RBO A025 SubD 25 Breakout Board | UK 4250479328518 |
| | | US 4250479328525 |
| greenMachine titan Constellation Licenses (no Hardware included) | | EAN |
| GMC-4KUPXD | 4KUPXD Constellation License: 1x 12G-SDI Up/Down/Cross Converter | 4250479326064 |
| GMC-3GUPXD | 3GUPXD Constellation License: 4x 3G-SDI Up/Down/Cross Converter, Frame Sync, | 4250479326521 |
| GMC-TestorAV | Testor AV Constellation License: 1x 12G-SDI and 4x up to 3G-SDI Test Pattern Generator & AV Delay Measurement and Correction | 4250479929364 |
| GMC-Testor | Testor Constellation License: 1x 12G-SDI and 4x up to 3G-SDI Test Pattern Generator | 4250479326101 |
| GMC-HDR-EVIE+-titan | HDR Evie+ Constellation License: 1x 12G-SDI and 4x up to 3G-SDI HDR ► SDR Dynamic Segmented Converter (includes GMC-HDRS) | 4250479327252 |
| GMC-HDRS | HDR Static Constellation License: 1x 12G-SDI and 4x up to 3G-SDI HDR ◄► SDR Converter | 4250479326118 |
| GMC-BiDi | BiDi Constellation License: Bidirectional Fiber Transport Solution | 4250479327917 |

| greenMachine titan Packages (Includes License, GM6840, RFR6000, 2x RPS A100, RBO A025) | | EAN |
|--|---|---------------|
| GMPT-UPXD | greenMachine titan 4KUPXD and 3GUPXD | 4250479929333 |
| GMPT-TestorAV | greenMachine titan TestorAV Package | 4250479929357 |
| GMPT-Testor | greenMachine titan Testor Package | 4250479327900 |
| GMPT-HDR Evie+ | greenMachine titan HDR Evie+ and HDR Static Package | 4250479327870 |
| GMPT-HDR Static | greenMachine titan HDR Static Package | 4250479327863 |
| GMPT-BiDi | greenMachine titan BiDi Package includes additional GM6840, RFR6000, 2xRPS A100 and RBO in addition to the following SFPs: 1x OH-BD-12G-1270-LC, 1x OH-BD-12G-1330-LC, 1x OH-BD-51-1310-LC, 1x OH-BD-51-1550-LC | 4250479326088 |

For greenMachine the following regulatory and safety standards apply:

CE: EN 55103-1/1996, EN 55103-2/1996, EN 60950-1/2006
Following the provisions of 2004/108/EC and 2006/95/EC directives.

FCC: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15, Subpart B of the FCC Rules.

The RPS A100 power supply (EA11011D-1200) complies with the following safety standards:

UL/cUL 62368-1, TUV EN 62368-1, CB IEC 62368-1, FCC, CE, BSMI, PSE, RCM, IRAM

