DATASHEET

GV Orbit

Dynamic System Orchestrator for SDI, Hybrid and IP Networks

Unified configuration, control and monitoring designed for open standards-based IP, hybrid and SDI networks — easily mimics traditional SDI operational control for IP systems.

GV Orbit from Grass Valley is a single, consolidated, overarching configuration, control and monitoring package specifically designed for the dynamic orchestration of broadcast media networks, whether they be SDI, hybrid or pure IP. Its underlying architecture, however, is targeted at open standards-based IP systems with many features and functions specifically crafted to make IP easy.

Dynamic Orchestration is GV Orbit's core strength that differentiates it from competitive systems. The ability to build, configure and change systems on-the-fly, whether it's adding/removing devices or simply changing a name, is hugely powerful. In today's cost-conscious world, fast and efficient deployment and re-purposing of systems for alternative scenarios or productions is a key requirement.

GV Orbit is comprised of license-enabled software applications allowing users to customize a system to suit their exact needs. It may be, for instance, that a video and audio routing system is only required with all facility monitoring to be implemented using an existing or alternative platform and industry standard protocols. In such a scenario, just the configuration and control elements of GV Orbit could be licensed, but without the monitoring component. The converse is equally true for organizations wishing to implement third-party (northbound) router control but desire the configuration and monitoring capabilities for networked Grass Valley devices.

A key benefit of GV Orbit is that media organizations can now source all the main end-to-end system components from a single, industry proven and respected solutions provider, ensuring full interoperability and reliability.

Benefits

- Unified configuration, control and monitoring speeds up operations, reducing risk of errors
- Equally suitable for SDI, hybrid or pure IP, easing the migration process
- Verified and tested in typical workflow scenarios with Grass Valley devices…the largest open standards-based IP portfolio on the market
- Mimics traditional SDI operational control for IP, reducing training requirements and costs
- In-operation "live updating," saving time and money
- Designed for open standards-based IP, ensuring compatibility and future proofing SMPTE ST 2022-6/-7, SMPTE ST 2110, SMPTE ST 2059 (PTPv.2), AMWA NMOS (IS-04, IS-05)
- Third-party device integration, providing flexibility and choice

Applications

- Venues, studios and control rooms
- Remote production
- OB vehicles and flyaways
- Multiple other media and broadcast facilities

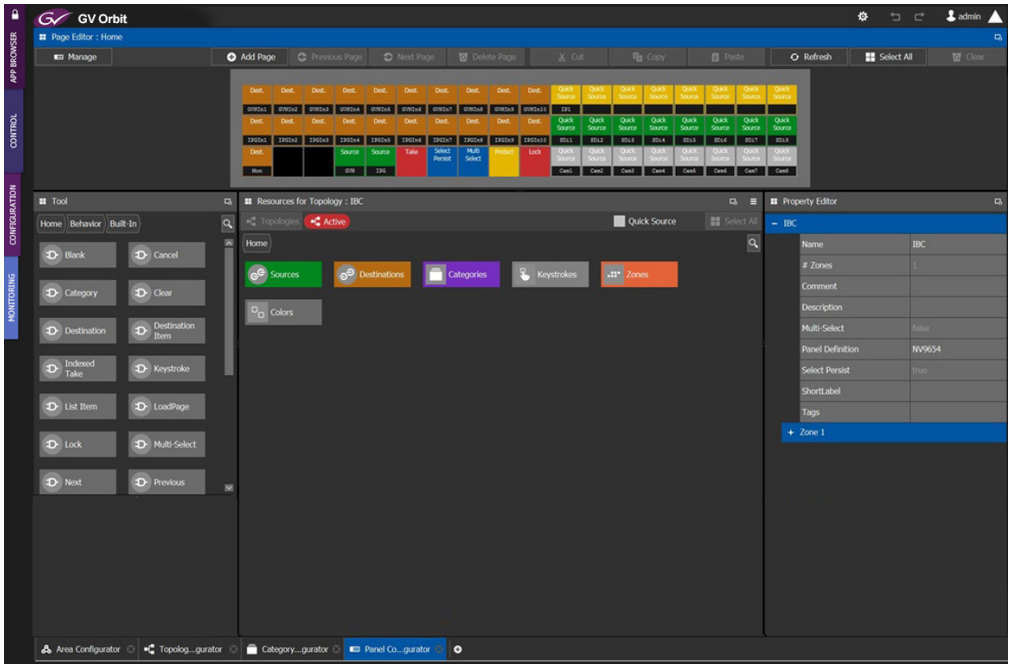
KEY FEATURES

- Device discovery and detection
- Easy device addressing, setup and system configuration
- Ergonomic graphical screens include device list and topology views with "drill-down"
- Live updating including signal renaming and adding new devices
- Fully featured routing control for SDI, hybrid or IP router/switch
- Seamless integration with GV Fabric and other COTS Ethernet switches
- Clean switching with "make-before-break" or "break-before-make" on IP devices
- SMPTE ST 2022-7 hitless changeover on redundant IP flows
- Full integration of Grass Valley control panels with live updating
- Pathfinding, e.g., dynamic creation of shuffled audio flows
- Comprehensive, configurable system alarms and warnings
- Grass Valley MV Series multiviewer configuration
- Wide bouquet of predefined monitoring screen sets
- Custom screen creation
- Monitoring by exception
- Warning and/or alarm pop-ups
- System-wide logging, backup and restore
- Multiple system tools for system management and analysis
- SMPTE ST 2059 compliant IP Precision Timing Protocol

GV Orbit Highlights

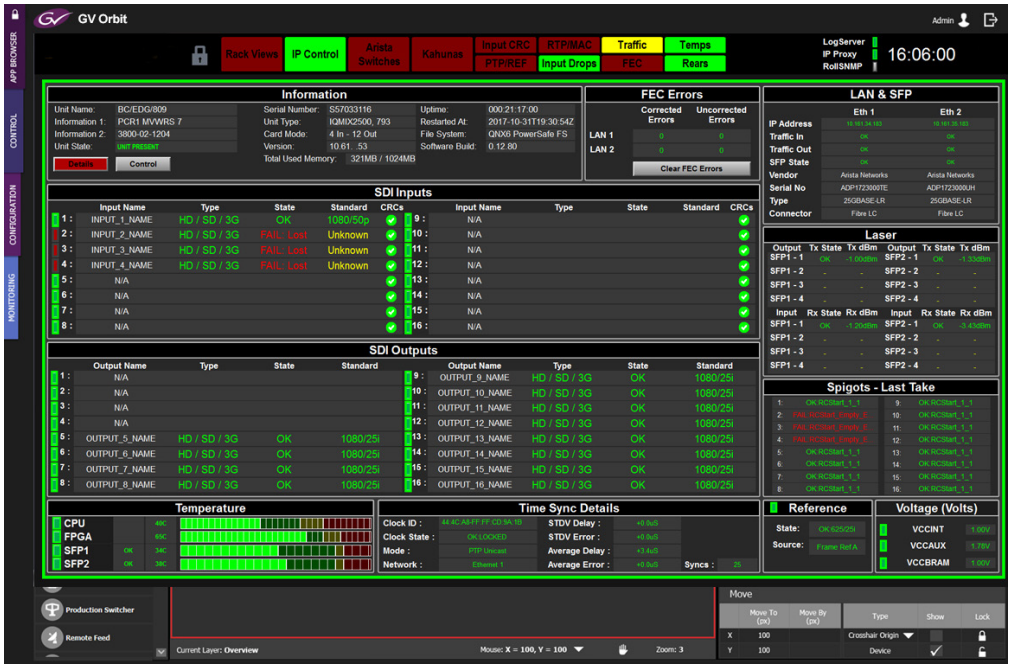
In-operation "Live" Updates

GV Orbit screens are fully customizable. For IP, it's easy to make router panel layouts mimic traditional SDI facilities, eliminating the burden of training on new workflows. With GV Orbit's Live Updating, adding or removing devices, changing control surfaces or just renaming signals can all be done all on the fly…there's no more downtime pushing new configurations to system controllers. GV Orbit's Live Updating is ideal for OBs or any production environment needing rapid re-purposing.



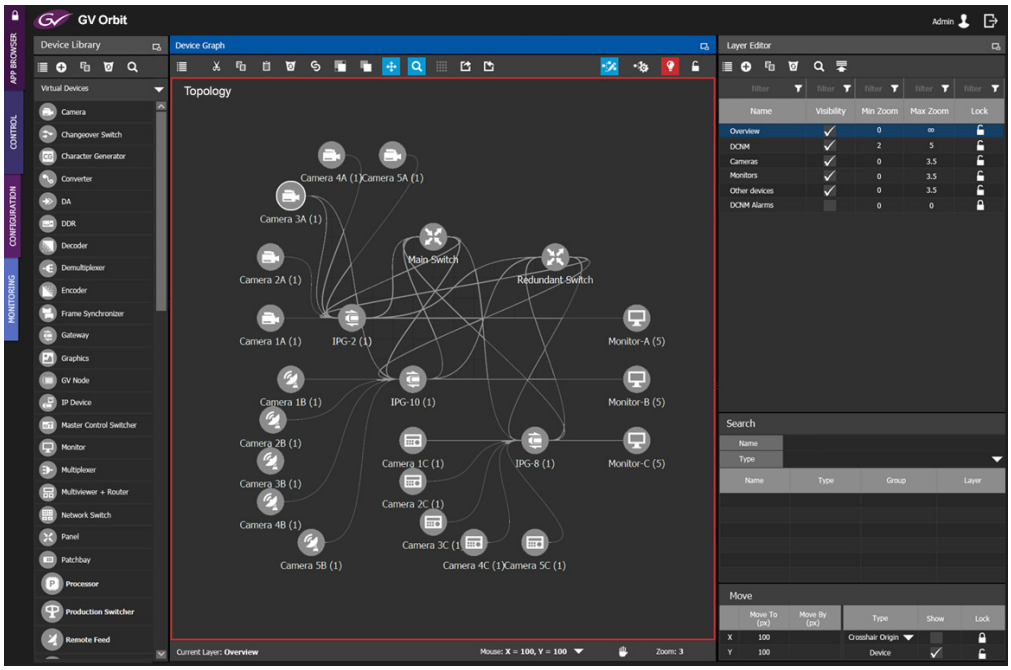
IP Device Discovery & Detection

GV Orbit immediately recognizes and displays the addition of a new device with all its parameters immediately accessible on the network. The new device can be dragged-and-dropped onto the visual network topology diagram ready for deployment. GV Orbit delivers the flexibility to add not only Grass Valley IP products, but also NMOS-compliant third-party devices. GV Orbit is future-proof and ready to embrace new open standard functions as they are ratified.



Dynamic Pathfinding

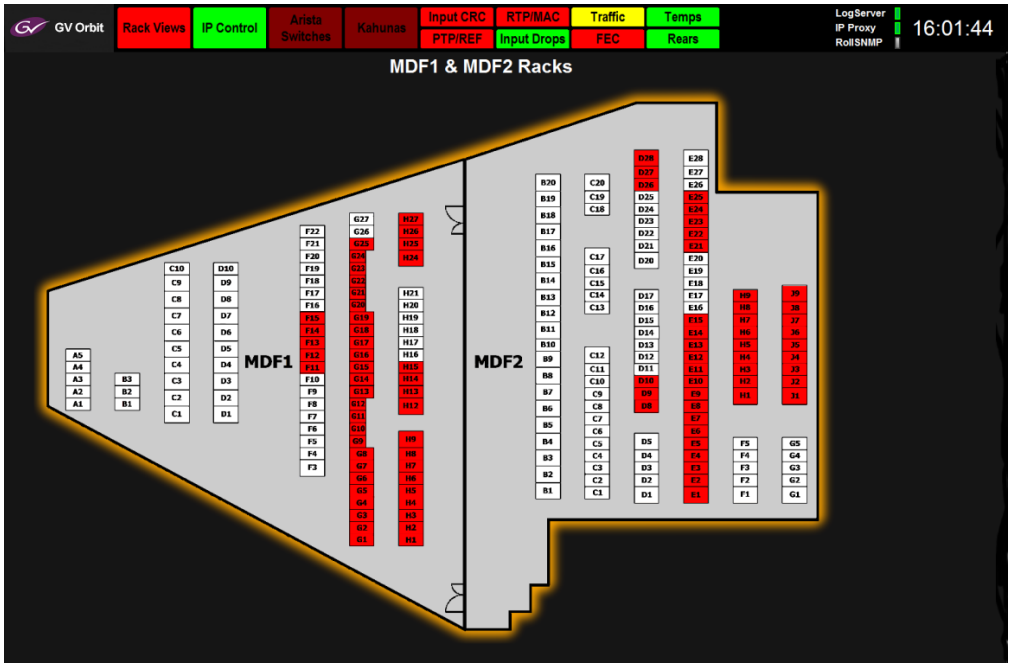
Audio Live, Grass Valley's COTS-based IP audio router, receives, consolidates and encapsulates multiple audio flows in a single device. GV Orbit and Audio Live combine to enable Dynamic Path-finding. IP endpoint devices are set to subscribe to audio flows from the network. When GV Orbit initiates audio swapping at an endpoint, and the newly requested audio composition is not immediately available, Audio Live will dynamically create the new flow compatible with the device's SMPTE ST 2110-30 designated audio level. That's hugely powerful…it not only means every device has access to other flows across the network, but the whole process is simplified without the need for complex flow requests and audio channel swapping at the endpoints. Moreover, monitoring is greatly simplified with audio monitoring devices only needing to subscribe to the same newly composed flow.



Comprehensive, System-wide Monitoring

GV Orbit's monitoring toolset is powerful and feature-rich. It's not only the software used to enable all the required system warnings and alarms, graphical indicators and display streamed thumbnails, but also to configure Grass Valley's MV range of multiviewers.

GV Orbit is perfect for "monitoring by exception," meaning a status window or notification will only appear after receipt of an associated warning or alarm. What's more, the system can be set up to either perform an automated response, such as a signal changeover, or prompt manual intervention. GV Orbit diagnostic tools give you multiple ways to probe system status including "drill down" through pictorial representation of your facility or at the logic level depicting network flows and connectivity. Alternatively, you can simply specify a parameter such as IP address or something straightforward like temperature. GV Orbit will then display that parameter for every device on your network.



SYSTEM OVERVIEW

GV Orbit is available in three variants: GV Orbit Lite, GV Orbit Professional and GV Orbit Enterprise

GV Orbit Lite is freeware dedicated to the preparation and configuration of both SDI and/or IP Grass Valley system devices for deployment on a network. GV Orbit Lite can be downloaded from the Grass Valley website and installed on one or multiple PCs running MS Windows.

GV Orbit Professional is the standard base operational software and the required software components must be purchased along with a GV Orbit Server on which it comes pre-installed. It includes GV Orbit Lite but with the additional functionality for complete configuration, control and monitoring of SDI, hybrid or pure IP networks. A fully featured routing system, for example, can be implemented (when purchasing the "Control" software component) including salvos, breakaways with "live" updating for both PC screen and hardware control panels. Alternatively, northbound control from a third party or automation system can be enabled.

GV Orbit Enterprise includes the full control feature set from GV Orbit Professional, but with additional applications and services such as third-party device integration, automatic (dynamic) pathfinding and multi-hop control. Both GV Orbit Professional and Enterprise can include an optional license to enable a wide portfolio of pre-defined monitoring screen sets.

A summary of the functionality provided by each GV Orbit variant is shown below:

GV Orbit Lite*

- Device discovery
- Device configuration
- Device alarm status
- Device software install/update
- Device backup/restore
- Device resident licensing

*Supports Grass Valley devices only

GV Orbit Professional

Orbit Lite, plus…

- Alarm management
- Alarm logging
- System-wide software install/update
- System-wide backup/restore
- Run log aggregation
- Parameter control
- Router control
- Custom page usage
- Global authentication
- Tally management
- Thumbnail/proxy displays

GV Orbit Enterprise

Orbit Professional, plus…

- Third-party device integration
- Automatic pathfinding
- Multi-hop control
- Services orchestration

PRODUCT CATEGORIES

GV Orbit is composed of three product categories: Server & Software Options, Licenses and Services.

Server & Software Options — The GVO-HW Server includes software options relating to configuration, control and monitoring at the professional or enterprise levels. Details of the functionality incorporated within each option is given in the Ordering section.

Licenses

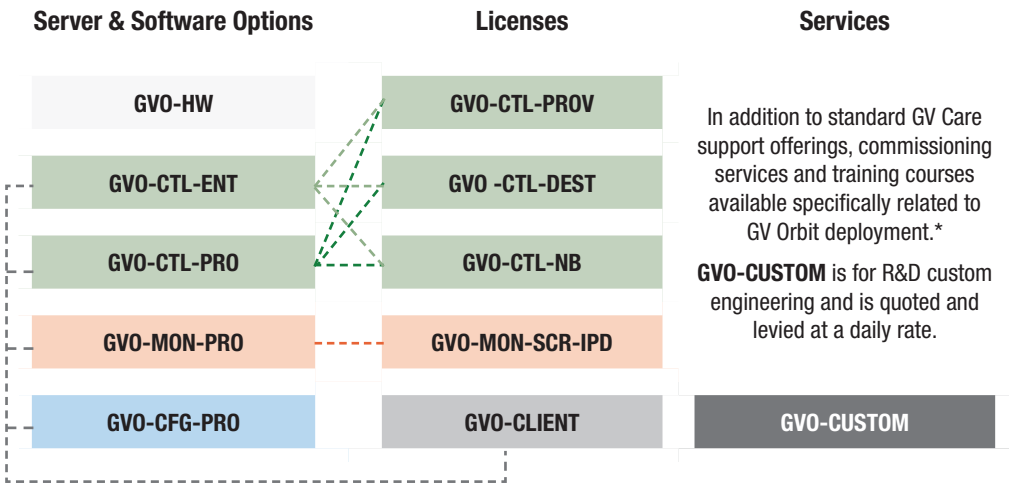
GVO-CTL-PROV must be included for systems using a COTS Ethernet switch.

GVO-CTL-DEST relates to the number of signals and/or flows to be implemented and is dependent on system size.

GVO-CTL-NB is an additional license levied when using third-party northbound control and is also dependent on system size.

GVO-MON-SCR-IPD provisions the use of GV Orbit's pre-defined sets of monitoring screens.

GVO-CLIENT A complimentary client license is included with each GV Orbit turnkey server. Additional licenses can be purchased.

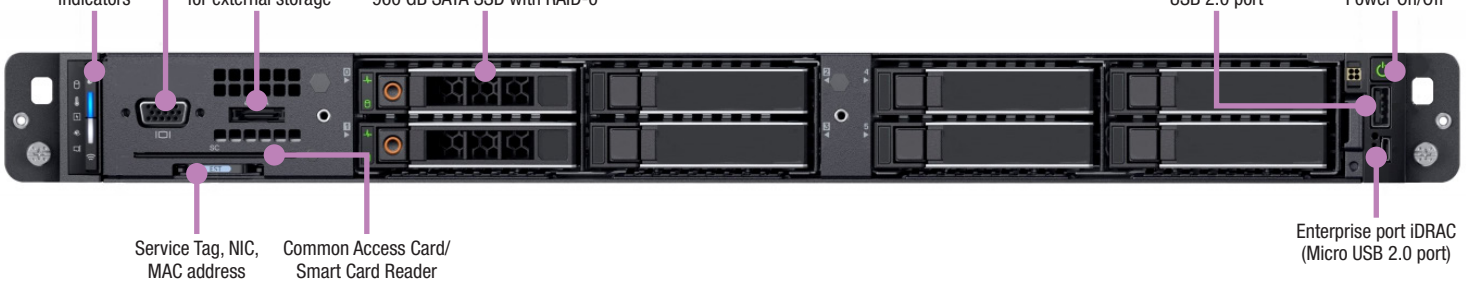


Descriptions of each license type are given in the Ordering section.

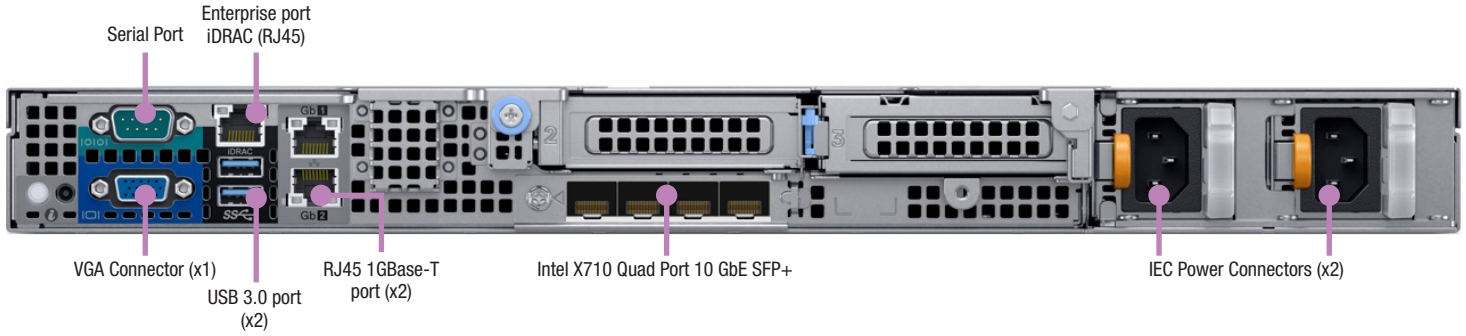
*Contact your local Grass Valley sales office for more details.

Front View

Front View
Behind Fascia Panel



Rear View



SPECIFICATIONS

The **GV Orbit Server (Product code GVO-HW**) is supplied with both server and purchased GVO software options pre-installed.

The specifications below are for the server system delivered at the time of product launch. The dynamic nature of supply/availability for this type of COTS hardware means that the actual server device supplied may change with time. Nonetheless, in such circumstances a fully compatible equivalent (or higher) specification server will be supplied.

Input/Output Ports

Chassis Front (Behind Fascia):

Status LED indicators
VGA* Connector (x1)
eSATA: Connection for external storage
USB 2.0 port
Enterprise port: iDRAC (Micro USB 2.0 port)
Information tag: Service Tag, NIC, MAC address
CAC: Common Access Card/Smart Card Reader

Chassis Rear:

COM: Serial port
Enterprise port: iDRAC (RJ45)
VGA Connector (x1)
USB 3.0 port (x2)
LAN: RJ45 1GBase-T port (x2)

PCIe 3.0 Slots:

NIC: Intel X710 Quad Port 10 GbE SFP+

Power

Power Supply (x2): 550W redundant
Connector (x2): IEC
Mains Voltage: 115-235 VAC, 50/60 Hz

System

CPU: Dual Xeon Gold, 24 cores combined
Memory: 96 GB RAM
Hard Drives (x2): 960 GB SATA SSD with RAID-0

Physical

Height: 43 mm (1.7 in.), 1 RU rackmount
Width: 434 mm (17.1 in.)
Depth (including bezel): 610 mm (24 in.)
Weight: 13 kg (2 8 lbs.)

Environmental

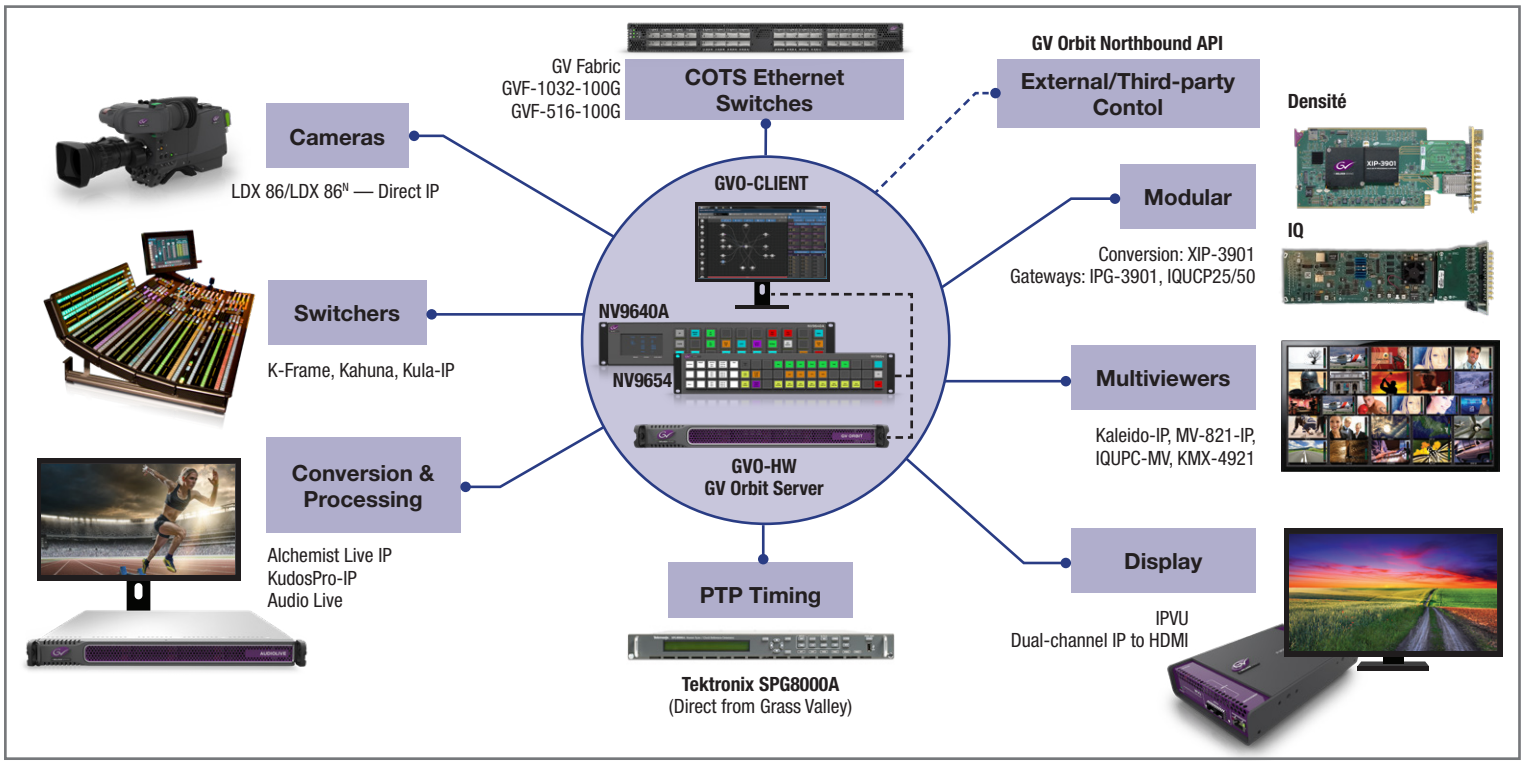
Operating Temperature: +5°C to 45°C (41°F to 113°F)
Non-operating Temperature: –40°C to 70°C (–40°F to 158°F)
Operating Relative Humidity: 5% to 85% (non-condensing)
Non-operating Relative Humidity: 5% to 95% (non-condensing)
Ventilation: Front to rear

Compliance

EMC – Emissions: FCC Part 15 (USA), EN55103-1 (EU)
EMC – Immunity: EN55103-2 (EU)
Safety: UL1419 (USA), EN60950 (EU)
Hazardous Material: RoHS-6 (UK) – Complies EU Directive

* The rear VGA port overrides the front VGA port when both the ports are connected.

GV Orbit enables configuration, control and monitoring of end-to-end open standard-based IP systems.



ORDERING

Server and Software Options

GVO-HW*[1]

GV Orbit 1 RU server with dual power supplies, dual 960 GB SSD with RAID, 96 GB RAM, and Quad port 10 GbE SFP+ network adapter

GVO-CTL-PRO

License for GV Orbit Control Professional software. One license required per server. Includes one client seat (GVO-CLIENT).

Includes: aliases, breakaway, lock and protect, GPIO logic, salvos, northbound control and support for Grass Valley hardware panels.

GVO-CTL-ENT

License for GV Orbit Control Enterprise software. One license required per server. Includes one client seat (GVO-CLIENT).

Includes Professional features plus: automatic pathfinding, multi-hop control and shuffle.

GVO-MON-PRO

License for GV Orbit Monitoring Professional software. One license required per server. Includes one client seat (GVO-CLIENT).

Includes: MapView, HTML and logging support

GVO-CFG-PRO

License for GV Orbit Configuration Professional software. One license required per server. Includes one client seat (GVO-CLIENT).

Software Licenses

GVO-CTL-PROV

License for switch interface for network policy control.

GVO-CTL-DEST

License for control of three standard (non-hybrid) SDI destinations or two hybrid SDI destinations or two IP destinations with GV Stack control, or two Virtual XPTs, or one NMOS IS-05 receiver, or one Direct Flow Orchestration receiver or one complex IP destination. SMPTE ST 2022-7 redundancy counts as two destinations. NMOS IS-05 receivers require GV Orbit Enterprise (GVO-CTL-ENT).

GVO-CTL-NB

License for router control accomplished from a northbound control or automation system. One license required per GVO-CTL-xxx destination.

GVO-MON-SCR-IPD

License for preconfigured monitoring screens for IP deployments.

GVO-CLIENT

License for additional GV Orbit client seat.

GVO-CUSTOM*[2]

Custom configuration, control, and monitoring development and engineering services.

*1 Two GVO-HW servers are required for fully redundant independently controlled networks. All software options purchased with the main GV Orbit server must be replicated in the redundant (second) server.

*2 Product code for daily rate.