

# IQ Modular Enclosures



DATASHEET

# Flexible and Reliable Video and Audio Backbone

Flexible and reliable video and audio backbone for all types of video and audio signals.

The IQ Modular range provides a comprehensive, reliable and cost-effective interfacing and processing solution for any broadcast infrastructure project. Handling all types of video and audio signals, IQ Modular provides industry leading packing density with new 4 RU IQ high power frame and multi-channel modules enabling 40 channels of powerful video and audio processing and conversion, or 80 channels of SDI distribution with 320 outputs. IQ Modular is equally at home with IP, coax, fiber or any common interface standard, and its modular approach means that it is easily scalable and upgradeable as your needs change. New enhancements to the series include IP to SDI interfaces and modules supporting Grass Valley's unique Media Biometrics technology for network wide confidence monitoring, from basic error detection to more subtle issues such as logo or lipsync matching.

With over 500,000 modules already in service worldwide, IQ Modular is a proven reliable, comprehensive system trusted by broadcasters both large and small.

# Build what you need

With hundreds of modules providing a range of functionality, complex systems are possible with advanced control and monitoring systems keep everything running smoothly with minimal intervention. With hundreds of modules providing a range of functionality, complex systems are simple to build with advanced control and monitoring systems such as GV Orbit keeping everything running smoothly with minimal intervention.

## How do I order the right modules for my enclosure?

Although IQ modules are interchangeable between enclosures, each enclosure requires a suitable variant of panels.

'B' order codes may be used when installing modules in the IQH3B and IQH4B enclosures and latest generation 1 RU IQH1A enclosure. Only 'A' order codes must be used when installing modules in the IQH3A and older generation IQH1A enclosures. Non 'A' order codes relate to all other Grass Valley IQ modular enclosures. Please take time to ensure that the compatible order code is selected to match the chosen enclosure.

Current 3 RU 'B' Style Enclosure, including the newer 1 RU 'A' Style Enclosures — Rear panels with the suffix 'B' or 'A'\* may be fitted into them

> 4 RU 'B' Style Enclosure — Rear panels for approved modules with the suffix 'B' may be fitted into them

Older 3 RU and 1 RU 'A' Style Enclosures — Rear panels with the suffix 'A' may be fitted into them

> All Other Enclosures — Rear panels without the suffix 'A' or 'B' may be fitted into all other IQ Modular enclosures

\* 'A' build rear panels will fit into 'B' 3 RU enclosures, however features such as frame reference (if relevant to the module) would not be supported by those modules.

DATASHEET

# IQH4B

# IQ 4 RU Modular Enclosure



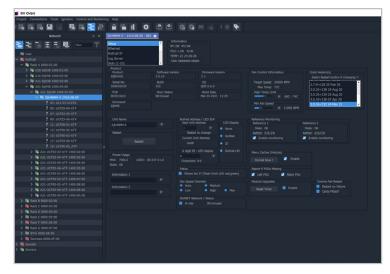
IQH4B enclosures offer industry-leading, high-density delivery of modular solutions, primarily for use with IP modules. With up to 700W of module power available this 4 RU enclosure accepts up to 20 modules, has dual redundant PSUs and in-service replaceable cooling fans. Analog reference signals can be distributed through the enclosures via two connections that can be independently selected by the installed modules. Control and monitoring is included as standard using the latest generation Gateway (IQRCG) control card that has its own module-style rear connector, providing improved (faster) control template access, HTML5 web browser connectivity, dual Ethernet support with DHCP and improved menu caching, with full GV Orbit and SNMP control and monitoring functionality.

### **KEY FEATURES**

- 20 single- or 10 double-width modules (or any combination)
- Plug-in gateway communications card to enable control via RollNet and over TCP/IP Dual 1 GbE connections
- Fast control access with full menu and control caching for all modules
- Integrated HTML5-based web browser access for enclosure and module configuration and control
- SNMP control and monitoring of ALL intelligent IQ modules as standard
- $\bullet$  Dual Ethernet with DHCP support, failover rules and Roll-Call+ auto-discovery
- Dual redundant network architecture over Ethernet and RollNet enables mission critical control applications to function even if a complete network failure occurs
- 2x analog reference signal distribution for dual standard (bi-level or tri-level), dual video standard (SD or HD), and reference redundancy applications with reference status reporting (Note: Only applicable to modules with -B order codes)
- Hot swappable redundant power supplies and in-service replaceable fan units
- Optimum use of rack space frames do not require any additional ventilation spacing
- Variable fan speed, dependent upon load and ambient temperature
- Full chassis monitoring, including inlet and outlet temperature, PSU, fan and module status
- Door status monitoring (open/close)
- Full CE and UL compliance

Q Modi	ılar Eı	nclosures	s Web	Servio	e 📻			Iptime our minsec 1759.00			G	grass val
ystem information												System Time: 11:1
Enclosure Name: Type: Fault(s):	10148		OK/dhe 172.19.160.1 255.255.254		d Refi	erence-1 State: Standard	OK 625/29		LogServer Name: Address: Logging State:	LogServerIPDemo LogServerIPDemo OK		ess: 10 atus: OKUnused Rate: OK
Controller Type: Serial Number: Software Version	\$58036524		CIK/Active 172.19.168.1 255.255.254		Refi	erence-2 State: Standard:			SNMP Agent: OID Count 1st Trap:	Active 2051 172 1981 179	Module Com	N(s): OKNone ums: OK 1 To: Unknown
nvironmental Inform	nation											
	700LU OK:100.0 LU	PSU Right State		G & OKRUNNING		perature State: Dutlet (1L.& 1R) Dutlet (2L.& 2R) Dutlet (3L.& 3R)		@ 26C @ 24C @ 22C @ 22C		OKNomal OKNomal OKNomal	& OKNormal & OKNormal & OKNormal	
Health Check		Parrosate	Cochorenee	A OKINUNERRO		intec						
lodule Status & Con	trol					inter						HTML
	trol d Name	Module Type No Unit Filted	ID# S		d Control Coreul		Slot 11	Assigner MXID-25		Sule Type Ant Filled	ID# Stat No Unit Abourt	
Iodule Status & Con Slot Assigne	trol d Name	Module Type	ID# S	tatus Ca	Control Control				ATF No.U	and Filled		turs Card Control Control Control
odule Status & Con Slot Assigne	trol d Name	Module Type No Unit Filled No Unit Filled KOMPCISOD	IDII S Notinit A Notinit - 793 C	tatus Ca boort	Control Control	mer	11 12 13		ATF Not Not	int Filed Int Filed Int Filed	No Unit Absord No Unit No Unit	tus Card Control Control Control
Iodule Status & Con Slot Assigne 1 MDC5-18 2	trol d Name	Module Type No Unit Filled No Unit Filled KOMPCISOD	IDJ S No Linit A No Linit -	tatus Ca Isont I	Control Control		11		ATF Not Not Not	init Filted Init Filted Init Filted Init Filted	No Unit Absert No Unit -	turs Card Control Control Control
Slot Assigne 1 MDG518 2 3 MDG519 4	trol d Name	Mocule Type No Unit Filled No Unit Filled KOMPCISED No Unit Filled	IDI S No Unit A No Unit - No Unit -	tatus Ca Isont I	Control Control Control		11 12 13 14		ATF Not Not Not Not	init Filled Init Filled Init Filled Init Filled	No Linit - No Linit - No Linit - No Linit -	turs Card Conte Contes Contes Contes
Slot Assigne 1 MDG518 2 3 MDG519 4	trol d Name	Mooule Type No Unit Filled No Unit Filled KOMPCISSO No Unit Filled KOMPCISSO	IDJI S NoUnit A NoUnit - NoUnit - 795 C	tatus Ca bort I K I	Control Control Control Control Control	inec.	11 12 13 14 15		AIF Not Not Not Not Not	ink Filled Ink Filled Ink Filled Ink Filled Ink Filled	No Linit About No Linit – No Linit – No Linit – No Linit –	tars Card Control Control Control Control Control
odule Status & Con Siot Assigne 1 MBOS-16 2 3 MBOS-19 4 5 MBOS-19 4 6	trol d Name	Module Type No Unit Filled No Unit Filled KOMPCISED No Unit Filled KOMPC4000 No Unit Filled	ID# S NoUnit / NoUnit - 793 C NoUnit - 795 C NoUnit -	K	Control Control Control Control Control		11 12 13 14 15 16		ATF Not Not Not Not Not Not	hai Filind hai Filind hai Filind hai Filind hai Filind hai Filind	No Unit Accept No Unit - No Unit - No Unit - No Unit - No Unit -	turs Card Control Control Control Control Control

IQH4B HTML5-based frame status overview.



IQH4B GV Orbit control panel view.

DATASHEET

#### **SPECIFICATIONS**

#### Inputs, Outputs and Controls

#### Inputs/Outputs

RollNet remote control: BNC connector GV Orbit/SNMP over TCP/IP 10/100/1000baseT dual Ethernet

#### **Controls via GV Orbit Remote Control System**

Full control via HTML5 interface (available from chassis), any hardware RollPod control surface or GV Orbit.

#### **General Specifications**

**Module complement:** 10 double-width or 20 single-width (or combinations of both) fitted vertically

Module card dimensions: 100 x 340 mm (3.9 x13.4 in.) (WxL)

# Module rear panel dimensions:

Height: 129 mm (5.1 in.) Double width 40.4 mm (1.6 in.) Single width: 20 mm (0.8 in.)

#### Power

Input voltage range: 100-240V 50/60 Hz Input connector: IEC320 C14 Power consumption: 1000 VA maximum Modules power dissipation: 700W/700 LU maximum Output: +12V and -7.5V  $\pm$ 5%

Note that all modules have built-in power supply fuses.

#### **CE Performance Information**

Environment: Commercial and light industrial E2 immunity, controlled EMC E4 emissions Peak mains inrush current following a 5 second mains interruption: 35A @ 230 VAC

#### Reference

## Analog reference:

2x analog reference inputs

Black (HD tri-level and SD bi-level) and blackburst (SD bi-level)

SD bi-level – RS170A

HD tri-level – SMPTE ST 240, SMPTE ST 274 and SMPTE ST 296

Connector/format: BNC/75 $\Omega$  panel jack

Analog reference return loss:

SD bi-level > -40 dB to 5.5 MHz HD tri-level > -30 dB to 30 MHz

#### Mechanical

Temperature range: 0 to 40° C (32 to 104° F)operating, -20 to +85° (-4 to 185° F) storage. A temperature- and load-sensitive cooling fan is fitted

Humidity range: 10 to 85% (non condensing)

Case type: 4 RU rack mounting aluminum case

#### Dimensions:

Width: 483 mm (19.0 in.) (445 mm (17.5 in.) behind rack location bracket)

Depth: 485 mm (19.1 in.)

Height: 180 mm (7.1 in.)

Weight: Approximately 13 kg (28.7 lbs.) without modules. Approximately 22 kg (48.5 lbs.) fully populated

#### ORDERING

#### IQH4B-S-P

Enclosure with Dual Redundant PSU and Ethernet/SNMP Compatible GV Orbit Gateway Card. 20 module slots

#### Accessories

#### IQH4B-PSU

Single PSU for use as a cold spare or replacement

#### **IQH4B-FAN**

Dual Fan unit for use as a cold spare or replacement

#### IQRCG0000-1B

Ethernet/SNMP compatible GV Orbit Gateway card for IQH4B and IQH3B enclosures

*Notes:* Although IQ modules are interchangeable between enclosures, each enclosure requires a suitable variant of panels:

- $\bullet$  'B' order codes may be used when installing approved modules in IQH4B enclosures
- The IQH4B enclosure is primarily for use with IP modules. Please check with your authorized Grass Valley representative for an updated list of other approved IQ modular cards for the IQH4B enclosure



IQH3B

# IQ 3 RU Modular Enclosure



IQH3B enclosures offer industry-leading, high-density delivery of modular solutions. The 3 RU enclosure accepts up to 16 modules, and has dual redundant PSUs and cooling fans. Analog reference signals can be distributed through the enclosures via two connections that can be independently selected by the installed modules. Control and monitoring is included as standard using the latest generation Gateway (IQRCG) control card that has its own module style rear connector, providing improved (faster) control template access, HTML5 web browser connectivity, dual Ethernet support with DHCP and improved menu caching, with full GV Orbit and SNMP control and monitoring functionality.

#### **KEY FEATURES**

- 16 single or 8 double-width modules (or any combination)
- Plug-in gateway communications card to enable RollNet, and GV Orbit control over TCP/IP Dual 1 GbE connections
- Fast control access with full menu and control caching for all modules
- Integrated HTML5-based web browser access for enclosure and module configuration and control
- SNMP Control and Monitoring of all inteligent IQ modules as standard
- Dual Ethernet with DHCP support, failover rules and auto-discovery

- Dual redundant network architecture over Ethernet and RollNet enables mission-critical control applications to function even if a complete network failure occurs
- 2x analog reference signal distribution for dual standard (bi-level or tri-level), dual video standard (SD or HD), and reference redundancy applications with reference status reporting (Note: Only applicable to modules with -B order codes)
- · Hot-swappable redundant power supplies

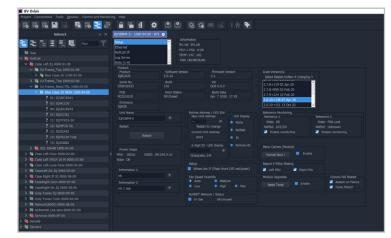
Optimum use of rack space — frames do not require any additional ventilation spacing

DATASHEET

- Dual redundant in-service removable fan unit
- Variable fan speed, dependent upon load and ambient temperature
- Full chassis monitoring, including inlet and outlet temperature, fan condition and module status
- Door status monitoring (open/close)
- Full CE and UL compliance

QIN	/lodular E	nclosure	s W	eb Serv	vice 👔			Jptime our minsec 100.42.00				G	<sup>r</sup> grass valley
lystem in	formation											Syna	iem Time: 17:05:17
Enclosi	Type: K2H30M4.5 Type: K2H38 Fault(s): FAIL PSU Fault	ENET-1 Stat IP Addres Subret Mas	s. 172.19	160.121	unter 1	Reference-1 State: Standard			LogServer Name: Address: Logging State:	LogServerNK		RollNet Address: Status: Recon State:	
	oller Type: KORC3UG al Number: S58092812 re Version: 3.8.10	ENET-2 Stat IP Addres Subnet Mas	s 172.19	168.121	ubled	Reference-2 State: Standard			SNNP Agent: CID Count: 1st Trap:			Bus Fault(s): Module Comms: IP Bridged To:	
nvironme	ental Information												
Power	Available: MSLU Usage: OK75.1LU alth Check: OK	PSU Left Stat				emperature State Outlet Inlet		@ 31C @ 23C	Rear Far(s) State: 1 & 2	OKMedum	& OKM	idan 🦳	
lodule St	atus & Control												HTML5v1.0
Slot 1	Assigned Name	Module Type No Unit Filled	ID# NoUnit	Status -	Card Control		Slot 11	Assigned F	lame Moc MD/	lule Type 40	1D4 850	Status	Card Control Control
	KQHIP10-3G	KOHIP18-3G	668		Control		12		Nol	init Filled	No Unit		Control
		No Unit Filled	No Unit		Control		13	KQSYN61	1051	NS1	828	ок	Control
		No Unit Filled	No Unit		Control		14			Init Filled			Control
	KQLIDC40	UDC40	889		Control		15		Nol	Init Fillerd	No Unit		Control
		No Unit Filled	No Unit		Control		16	IQHIP10-3G		P10-3G	668	ок	Control
		No Unit Filled	No Unit		Control				Module	n(s) Status:	ОК		
	KQHIP10-3G	KOHIP10-3G	668		Control								
					Control								
8		No Unit Filled	No Unit		CONSC								

IQH3B HTML-5 based frame status overview.



IQH3B GV Orbit control panel view.

DATASHEET

#### SPECIFICATIONS

#### Inputs, Outputs and Controls

Inputs/Outputs

RollNet remote control: BNC connector GV Orbit/SNMP over TCP/IP

#### 10/100/1000baseT dual Ethernet

#### **Controls via GV Orbit Remote Control System**

Full control via HTML5 interface (available from chassis), any hardware RollPod control surface and GV Orbit

#### **General Specifications**

SDI module complement: 8 double width or 16 single width (or combinations of both) fitted vertically IP module complement (all double width):

IQUCP25: 4 IQMIX25: 4 **IQUCP50: 3** 

Module card dimensions: 100 mm wide, 340 mm long (3.9 in. wide, 13.4 in. long) Module rear panel dimensions:

Height: 129 mm (5.0 in)

Double width: 40.4 mm (1.6 in.) Single width: 20 mm (0.8 in.)

#### Power Input voltage range: 100-240 V 50/60 Hz Input connector: IEC320 Fused 4 A(T) Standby switch: Behind drop-down front panel Power consumption: 300 VA maximum Modules power dissipation: 210W/165 LU maximum (100 LU for Dimensions: IQH3BQ) Output: +7.5V and -7.5V ±5% Note that all modules have built-in power supply fuses. **CE Performance Information** Environment: Commercial and light industrial E2 immunity, Weight: controlled EMC E4 emissions Peak mains inrush current following a 5 second mains interruption: 10A Reference Analog reference: 2x analog reference inputs Black (HD tri-level and SD bi-level) and blackburst (SD bi-level) SD bi-level - RS-170A HD tri-level - SMPTE ST 240, SMPTE ST 274 and SMPTE ST 296 Connector/Format: BNC/75 $\Omega$ panel jack on standard IQ connector panel Analog reference return loss: SD bi-level > 40 dB to 5.5 MHz HD tri-level > 35 dB to 30 MHz

#### Mechanical

Temperature range: 0 to 45° C (32° to 113° F) operating, -20 to +85° C (-4 to 185° F) storage. A temperature- and load-sensitive cooling fan is fitted Humidity range: 10 to 85% (non condensing)

Case type: 3 RU rack mounting aluminum case

Width: 483 mm (19.0 in.) (445 mm 17.5 in.)behind rack location bracket) Depth: 490 mm (19.3 in.)

Height: 135 mm (5.3 in.)

Approximately 8.25 kg (18.2 lbs.) without modules Approximately 15 kg (33.1 lbs.) fully populated

Please refer to the IQH3B and respective IQ module Operators Manuals to determine the module power rating limits (PR) for your required configuration. In the IQH3B Enclosure power is quoted in Load Units (LU), which refers to power (in watts) taken from the positive rail. The IQH3B has 165 power loading (LU) units available for modules. The power ratings of each module should be added together and the total should not exceed 165 loading units. Modules that do not specify a "power rating" should use the total power figure (W) as a power rating value.

#### ORDERING

#### IQH3B-S-P

Enclosure with Dual Redundant PSU and Ethernet/SNMP Compatible GV Orbit Gateway Card. 16 module slots

#### **IOH3B-SOP**

100 load unit quiet enclosure with Dual Redundant PSU and Ethernet/SNMP Compatible GV Orbit Gateway Card. 16 module slots

#### Accessories

#### IQH3B-PSU

Single PSU as cold spare or upgrade to dual PSU configuration

#### **IOH3B-FAN**

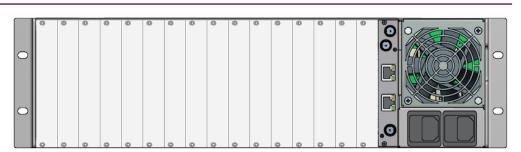
Dual Fan unit for use as cold spare or replacement

#### IQRCG0000-1B

Ethernet/SNMP compatible GV Orbit Gateway card for IQH4B and **IQH3B** enclosures

Notes: Although IQ modules are interchangeable between enclosures, each enclosure requires a suitable variant of panels:

- Either 'A' or 'B' order codes may be used when installing modules in IQH3B enclosures
- 'A' build rear panels will fit into IQH3B enclosure, however features such as frame reference (if relevant to the module) would not be supported by those modules



# IQH1A

# IQ 1 RU Modular Enclosure

The IQH1A enclosure offers high-density delivery of HD and SD modular solutions. The 1 RU enclosure accepts up to four "A" & now "B" single-width style SDI modules, two double-width style SDI modules. The IQH1A is available with hot-swappable dual redundant PSUs for maximum reliability. The enclosure is fitted with control and monitoring as standard, including full GV Orbit and SNMP control and monitoring functionality.

### **KEY FEATURES**

system availability

- Four single-width or two double-width modules (or any combination)
- Capable of accepting all types of IQ modules including HD-SDI, SD-SDI, AES and analog audio, analog video and fiber optics

· Dual redundant power supplies (hot swappable) for high

- Optimum use of rack space frames do not require any additional ventilation spacing
- Plug-in GV Orbit enabled via gateway card with TCP/IP, RollNet, SNMP and RS-232/422/485 connectivity
- In service replaceable cooling fans
- Chassis monitoring, including inlet temperature, fan condition and module status

# SPECIFICATIONS

## Inputs, Outputs and Controls

#### Inputs/Outputs

RollNet remote control: BNC connector RS-232/422/485 Remote control: 9-pin D-Type connector GV Orbit/SNMP over TCP/IP 10/100base-T Ethernet

#### **Preset Controls**

#### Additional Controls via GV Orbit Remote Control System

Full Control via GV Orbit Control Panel PC Application

#### **General Specifications**

Number of modules that may be accommodated: **1 RU:** 2 double-width or 4 single-width SDI (or combinations of both) fitted horizontally.

Module card dimensions: 100 mm wide, 340 mm long Module rear connector:

SD – 64 way HD/SD – 55 way

## Z pack + 6/9 coax inserts

Module rear panel dimensions: -A versions: 129 mm (5.1 in.) wide Double-width: 40.4 mm (1.6 in.) high

Single-width: 20 mm (0.8 in.) high

#### **CE Performance Information**

Environment: Commercial and light industrial E2 immunity, controlled EMC E4 emissions Peak mains inrush current following a 5 second mains interruption: 16A

# Power (each PSU)

• Full CE and UL compliance

Input voltage range: 100 – 240V 50/60 Hz Input connector: IEC320 Fused T3.15AH Input current: 2.5A Enclosure power consumption: 86.25W maximum ( $\pm$ 7.5V supplies) Modules power dissipation: 63W maximum Outputs: +7.5V and -7.5V  $\pm$ 10% Fan supply 11V  $\pm$ 1V 0.7A typical Note that all modules have built-in power supply fuses.

#### Mechanical

Temperature range: 0 to 40° C (32 to 104° F) operating, -30 to +75° C (-22 to 167° F) storage. Cooling fan is fitted Humidity range: 10 to 85% (non condensing) Case type: 1 RU rack mounting aluminum case Dimensions: 483 x 470 x 44.4 mm (19.0 x 18.5 x 1.7 in.) (WxDxH) Depth behind rack ears excluding space for leads: 450 mm (17.7 in.) Weight empty: 6.45 kg (14.2 lbs.)

Weight including modules: 8.25 kg (18.2 lbs.)

ORDERING

# IQH1A-S-P

Enclosure with Dual Redundant PSU & Ethernet/SNMP Compatible GV Orbit Gateway Card. 4 module slots

# Accessories

## IQH1APSU

Single PSU as cold spare or upgrade to Dual PSU configuration

### IQH1A-S-GATEW

Ethernet/SNMP compatible GV Orbit Gateway card for IQH1A enclosures



**Notes:** Although IQ modules are interchangeable between enclosures, each enclosure requires a suitable variant of panels:

- Either 'A' or 'B' order codes may be used when installing modules in the newer IQH1A enclosures
- When selecting 'B' build rear panels to fit into the IQH1A enclosure, please ensure features such as frame reference (if relevant to the module) are available on the rear since distributed reference is not supported in this enclosure

DS-PUB-2-0758E-EN



#### WWW.GRASSVALLEY.COM

Join the Conversation at **GrassValleyLive** on Facebook, Twitter, YouTube and **Grass Valley** on LinkedIn.



This product may be protected by one or more patents. For further information, please visit: **www.grassvalley.com/patents**. Grass Valley<sup>®</sup>, GV<sup>®</sup> and the Grass Valley logo are trademarks or registered trademarks of Grass Valley USA, LLC, or its affiliated companies in the United States and other jurisdictions. Grass Valley products listed above are trademarks or registered trademarks of Grass Valley USA, LLC or its affiliated companies, and other parties may also have trademark rights in other terms used herein.

Copyright © 2018-2021 Grass Valley Canada. All rights reserved. Specifications subject to change without notice.